

103  
**U.S. PESTICIDE EXPORTS AND THE  
CIRCLE OF POISON**

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Y 4.F 76/1:P 43/20/994

U.S. Pesticide Exports and the Circ...

**HEARING**  
BEFORE THE  
SUBCOMMITTEE ON  
ECONOMIC POLICY, TRADE AND ENVIRONMENT  
OF THE  
COMMITTEE ON FOREIGN AFFAIRS  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED THIRD CONGRESS

SECOND SESSION

JANUARY 26, 1994

Printed for the use of the Committee on Foreign Affairs



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ISBN 0-16-044656-2



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# U.S. PESTICIDE EXPORTS AND THE CIRCLE OF POISON

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WEDNESDAY, JANUARY 26, 1994

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON FOREIGN AFFAIRS,  
SUBCOMMITTEE ON ECONOMIC POLICY,  
TRADE AND ENVIRONMENT,  
*Washington, DC.*

The subcommittee met, pursuant to call, at 9:05 a.m. in room 2172, Rayburn House Office Building, Hon. Sam Gejdenson (chairman of the subcommittee) presiding.

Mr. GEJDENSON. The committee will come to order. In 1991, patrons at Atlanta's elegant Ritz Carlton Hotel received a less than elegant surprise when they ordered asparagus. The Argentinean asparagus on their plates was tainted with a cancer-causing pesticide which was made in America and legally exported to Latin American countries.

Even more disturbing, the U.S. Food and Drug Administration knew the asparagus served at the Ritz had been poisoned, yet failed to stop its distribution. A Circle of Poison was created, starting at a Memphis pesticide factory and ending in a hotel restaurant a few hundred miles from the factory's gates.

Two years have passed since the subcommittee uncovered this concrete evidence of the Circle of Poison. Yet the pesticide which poisoned the Argentinean asparagus is still exported from our shores, along with at least 26 other banned and unregistered American pesticides.

Despite this evidence, the FDA still tests only 2 percent of the imported food for pesticide residues, and 98 percent is shipped directly from the wharf to the supermarket shelf. Furthermore, one of today's witnesses will present compelling evidence that FDA labs in my native northeast perform much less than thorough tests on imported food than FDA labs in other parts of the country.

Because the powerful pesticide lobby has stymied congressional action, American consumers eating imported foods are still at risk. Laborers in developing worlds who use these dangerous pesticides are also still at risk. And the livelihoods of American farmers who must compete against products grown with these pesticides are still at risk.

In past years, I joined with Representative Mike Synar and Senator Pat Leahy in an effort to legislatively break the Circle of Poison. Our efforts have been unsuccessful. Many of us were disappointed to see the Clinton administration propose a pesticide ex-

port policy, released in September, that failed to place significant limits on U.S. pesticide exports.

Fortunately, due to the energetic leadership of EPA Administrator Carol Browner, the administration will announce a refined and improved pesticide export policy. While I will defer to the Administrator to discuss the details of the new policy, I believe that it represents the first major step forward in the Circle of Poison debate. Though it is my intention to work with the administration to strengthen the pesticide export policy even further, particularly as it relates to the never registered pesticides, the revised Clinton proposal will clearly serve as a base for congressional action.

Congress and the administration must move quickly to break the Circle of Poison. Each year 25 million agricultural workers around the world are poisoned by pesticides. With so many lives at stake at home and abroad, continued inaction is simply unacceptable.

For one of today's witnesses, we are acting too late. Kristan Phillips was poisoned by a banned U.S. pesticide while working abroad and now is unable to pursue his promising career as a musician. As Congress moves forward with pesticide export legislation, we should also keep Kristan's story closely in mind.

I would like to thank today's witnesses for coming, and look forward to hearing their testimony. I would particularly like to express my appreciation to Carol Browner, who took time out of her busy schedule to come here today and for her efforts to move this issue forward. It is now my privilege to yield to Representative Synar.

#### **STATEMENT OF HON. MIKE SYNAR, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF OKLAHOMA**

Mr. SYNAR. Thank you, Sam, and thank you for the invitation to be here. I will be very brief since you do have some outstanding witnesses in this area. I had hoped to testify before you for the last time today on that subject of the so-called Circle of Poison. The reason for my optimism is, as you said in your opening statement, that we unveiled today a new approach to the problem of exports banned and never-registered pesticides.

Unfortunately, as you and I have learned over the last 24 hours, this proposal is going to need a lot of work. Now, while the proposal that we will hear about today is not as sweeping as the one you and I and former Senator Al Gore and others have worked on, it nonetheless meets some of the major objectives of those past bills.

It means that this compromise, though not perfect, will generally protect U.S. consumers from unsafe pesticides and residues as they return on U.S. imported foods. It will probably, and I say that with the underlining probably, shield U.S. farmers from unfair competition from foreign farmers who use U.S.-banned products. And I think it will allow, very candidly, the U.S. Government and our country to take the morally correct position that we will not dump on the rest of the world these products which we consider too dangerous to use here at home.

Now, as my own subcommittee in 1989 found in the hearings on foreign pesticides, some of our foreign farmers, especially in Third World countries, lack the training and sophistication to use the

same products safely that are routinely used here in the United States. Unfortunately, the stewardship plan, which is presented here today, was stripped of its funding in the last 24 hours. Surely the U.S. pesticides industry, which had \$400 million in export sales last year, could have come up with the \$4 million needed to make that program a success.

Now, the principal difference, as you are aware, between this proposal and those that you and I have introduced in the past is the treatment of the never-registered pesticides. And in that area, it needs a lot of improvement.

Under its terms, the farm products grown with unregistered products can be imported into this country if the pesticides are approved for use in any three countries. And their technical data has been reviewed by credible authorities in the United States. The fact is, this just doesn't cut it. Not all countries' pesticide programs are created equal, and before I give my unqualified support to this proposal, I want to make sure that the new standards offer roughly equivalent protection for all Americans as the one proposal that you and I have been involved in the past.

Let me close with this, that I hope this proposal will be strengthened and that we can look at EPA and this effort today as the new responsiveness which we have not had in the past, and that we can get over some of these troubling problems. And finally, I hope that this time next year we will have indeed broken that Circle of Poison.

Mr. GEJDENSON. Thank you. I just want to commend you for the work you have done through the years on this issue. Working together, we are trying to come up with a responsible solution. It is as if we were selling bombs around the world that come back and explode in our own backyards. I think the most important thing that you said is the fact that even chemicals that we use here under some training and supervision with some expertise, end up being dangerous when used in countries where there is no training program, when often the workers are illiterate, and that endangers their lives and the food products that come back to us. And, of course, I invite you to join us if you have time to ask questions to any of the witnesses that come up. Thank you so much.

It is now my privilege to have the Honorable Carol Browner, Administrator of the U.S. Environmental Protection Agency, and without whose efforts we would not have made this great step forward.

#### **STATEMENT OF HON. CAROL M. BROWNER, ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY**

Ms. BROWNER. Thank you, Mr. Chairman, and thank you for the opportunity to appear today. We welcome this opportunity to present our proposals to this subcommittee regarding the export of dangerous pesticides and our proposed program for protecting all people from the risks associated with pesticide use. Enhancing the safety of the American food supply is of paramount importance to this administration.

This past year, the Environmental Protection Agency, the U.S. Department of Agriculture, and the Food and Drug Administration, working with the White House, developed a strong food safety



strategy which will establish a credible and effective regulatory system and provide for a safe, affordable food supply within a growing economy. We expect to share the actual legislative language with Congress and others shortly.

The pesticide debate has been gridlocked for years. But this administration believes our proposals can end this gridlock, and we are committed to working with Congress to enact stronger pesticide and food safety laws. This hearing today is intended, as I understand it, to address one component of the administration's overall pesticide safety proposals. And that is our export of pesticide policies.

Mr. Gejdenson and Mr. Synar, you have both outlined in your statements, I think, why we urgently need additional prohibitions on the export of banned pesticides and why we need to control the export of unregistered pesticides. If the United States is to assume an international leadership role as we are expected, we must also demand corporate stewardship and expand technical assistance around the world.

I would like to begin by taking a few moments to share some images with the subcommittee that demonstrate why we are deeply concerned about the potential harm to people and the global environment, as well as our own food supply, resulting from the export of U.S.-manufactured pesticides.

We are quite concerned that many of the countries which import U.S.-manufactured pesticides lack the resources to ensure the safe use and management of these products. We must be alert to the way these toxic materials are being marketed, handled, applied, and disposed of in importing countries, especially in developing countries.

I want to begin with an example of a pesticide that was sold in the Ivory Coast of Africa. This is a scotch bottle, I think J&B to be precise. This is what the bottle looks like in this country. This is what happened in the Ivory Coast. The original contents were emptied from the bottle, a pesticide was placed inside it. It was sold. There is a label on it, it is in French. However, the information on the label does not identify the active chemical ingredient. It does not provide directions for safe use.

The concern here is that an unknowing individual could pick this up, could see the J&B mark up here, and think that they have a bottle of whiskey when, in fact, they have a deadly chemical. Safe handling and the use of adequate protective equipment are rarely practiced in the tropical or subtropical climates of many developing countries. And I would like to point to a photograph we have. We have several actually.

These photographs<sup>1</sup> were all taken by EPA personnel working around the world. The first one, as you can see, is an individual mixing pesticides. Their hands, their arms, their face, are not protected. This would not be an accepted practice here in the United States. It is a type of exposure that can be easily avoided with proper instructions. Yet this is a far too common experience around the world.

<sup>1</sup>The photographs are retained in the subcommittee file.

The next photograph I have is a photograph of a worker in a banana plantation in Costa Rica, using a backpack sprayer and applying pesticides without adequate protective clothing. As you can see, he also has bare legs, bare hands. His face is not covered. Such unprotected behavior can put the worker at risk from absorption of the pesticide through the skin.

U.S. standards would require, in this country, at a minimum the use of coveralls, the use of gloves, and perhaps other protective measures depending on the toxicity of the product.

The next photo illustrates something that happens far too frequently, which is the improper disposal of pesticides in an open field. This is a site that people visited. What you see at the front, the blue stuff, appears to be several sacks of pesticides which have broken open and the contents are spilling out. In the back, that is a site where pesticides have been dumped apparently or disposed of apparently for some time.

These sort of practices, as we well know in this country, can threaten the local wildlife, the plant species, and pollute drinking water supplies.

The next photograph I have is a picture taken at a small farm in Peru. This is particularly troublesome to me. These are used pesticide containers. It is a common practice to reuse these containers to store such things as food, water, and seed. Contamination of the stored materials is of high likelihood. It is not something that would be acceptable in this country, yet we see it occurring around the world.

And the last photograph is by far the most troubling. What you have here is a young child with a bottle, Dr. Pepper bottle we think, that indicates a pesticide has been placed inside of that bottle. One of the reasons the pesticides get transferred to these types of containers, is that people can only afford to buy small quantities. They are exported in larger containers and then they have to be broken down into smaller containers. This bottle you see the child holding has very few markings on it beyond saying something about it being a spray. There are no use markings. There don't appear to be any active ingredient markings.

When we had our experts look at this, they were concerned that this bottle could contain paraquat. Paraquat does look an awful lot like sodas, dark-colored sodas. Paraquat is something that kills with just one sip. It is a grueling death. It can take several weeks for the individual to die, but in almost all instances they will die.

I don't think that any of us want to be a party to these sort of practices. We have to see these sort of things stopped. As you will remember back in September, and Mr. Chairman, as you made reference to, the administration outlined for Congress a comprehensive agenda for reforming pesticide laws, including proposals for controlling the export of dangerous pesticides. We have reexamined and strengthened our approach on pesticide exports.

What I would like to do is briefly describe the major provisions of the proposal we make today. First, we are calling for a prohibition on the export of pesticides to any country where all or virtually all uses of the product have been banned by this country, by the United States, for public health reasons, including pesticides voluntarily canceled by the manufacturers.



We will also prohibit export of pesticides banned for environmental reasons unless the importing country has specifically requested the product, has taken an affirmative action.

Second, our proposal forbids the export of pesticides EPA has not yet evaluated unless the pesticide is registered for use in at least three other countries with a technically competent and independent regulatory process.

Third, we want to improve the U.S. Government's ability to monitor imported foods for residues of unapproved pesticides. Exported pesticides that are not registered for food use in the United States will be required to have available a practical method for detecting residues of the ingredient in the food so that we can find it before the food comes back into this country.

We believe that these three provisions will ultimately enhance the safety of imported food for all Americans. However, we would also like to strengthen and expand technical assistance with developing countries so they may have access to health and safety information. Also, with appropriate funding, EPA would provide training in such areas as worker protection, pesticide storage and disposal, pest control approaches that employ low toxicity and biological controls.

We will also enforce the current internationally recognized system of prior informed consent or "PIC." This will allow an importing country to ask EPA to forbid shipment of any pesticide to protect their citizens. If they don't want it, we will honor that decision.

And, I think one of the highlights of our package, we will mandate that U.S. pesticide exporters follow the Food and Agricultural Organization's (FAO) international code of conduct on the distribution and use of pesticides. This will require pesticide manufacturers and exporters to expand their stewardship role and to curtail the occurrence of any problems arising in the actual use of their products, such as the ones highlighted in these photographs.

Finally, we recognize that we are not the only exporter of pesticides in the world. Therefore, in addition to proposing new legislation, we plan to take the lead in developing a multilateral approach to exports that will protect health and the environment worldwide against unreasonable risks of pesticide use.

Mr. Chairman, as I have become increasingly aware of the horrible misuse of pesticides occurring around the world, I am convinced that we in this country have a moral responsibility to act. If we are to protect future generations, to ensure them access to safe food, safe drinking water, and a safe environment to grow and work in, we must improve our pesticide laws. Knowing what we know today, none of us would allow what we saw in these photographs to happen in our communities.

I look forward to working together to secure the necessary improvements in our pesticide and food safety laws, banning the export of banned pesticides, enhancing our ability to monitor pesticides that come into this country on imported food, and requiring pesticide exporters to promote proper marketing and use of their products abroad. Again, Mr. Chairman, thank you for the opportunity to be here and thank you for your leadership on this issue.

[The prepared statement of Ms. Browner appears in the appendix.]

Mr. GEJDENSON. Thank you. Again, it is terrific having you here putting your energy and commitment into such a serious problem. Oftentimes we think of multilateral action for weapons, chemical, biological and nuclear, and we forget about this kind of issue needing exactly what you said, a multinational response. Because it is not simply American action. It is other nations and the products they make. It is the funding of programs by the World Bank and other agencies. All of these actions can have negative environmental impactation.

And as we spoke earlier, a year or so ago, we held a hearing on a World Bank-financed program to use DDT to increase cotton yield in Somalia. They increased the yield by 20 percent. They increased the cost by 20 percent, and they poisoned their water supply. And that is not helping, that is not a good use of World Bank funds. It is not good for the environment, and it is not good economics. So, again, I want to applaud you for taking us, I think, a tremendous step forward today. And we pledge to continue to work with you and try to strengthen what we have begun here today.

You know, sometimes we are in the inside for so long talking about these issues, that it ends up being a code word that works for us and the public doesn't quite understand it. In the previous administration, we had resistance to the concept of a Circle of Poison. But you agree that the products that we make here that are often restricted or at least used in a more knowledgeable way here often end up being used on agricultural products that come back and are consumed by American consumers?

Ms. BROWNER. Mr. Chairman, I think we all agree that this country has the safest food supply in the world. But we have an obligation to make it even safer. And I think the proposals that we have put forward today will allow us to ensure that we continue to have the safest food supply, that we take advantage of the technologies available, and of our leadership on these issues to secure changes that will not only protect our food supply, but will protect the food supply around the world and people and the environment.

Mr. GEJDENSON. One of the areas that I think Congressman Synar and I feel we might be able to help you along in making your proposal even a little better is with regard to the never-registered pesticides. Rather than letting approval by any three countries suffice to authorize imports, we should restrict it to three OECD countries. You wouldn't have any objections to that, would you?

Ms. BROWNER. I think what is the most important thing about looking to other countries and their registration programs, is the quality of that registration program. It needs to be a scientifically based registration program. We need to know that they have taken the time within that country to put in place a regulatory scheme that we have confidence in, and we are more than happy to work with you all in terms of shaping language that will guarantee that the countries we look to have the kind of program that we think is appropriate and protective.

Mr. GEJDENSON. And one of the things that you talked about, but I think it is important to focus on, is that sometimes a pesticide company, sensing that they will be rejected for approval, voluntarily withdraw from the registration process. And under the present law, they can instead export that unregistered pesticide.

Under EPA's proposal, what will happen?

Ms. BROWNER. If that voluntary cancellation is for health reasons, the export of that pesticide would be banned. I think it is also important to understand that the prior informed consent will allow any country to notify this country that they do not wish to receive a chemical and that we will honor that. We will not export that pesticide to that country.

Mr. GEJDENSON. And, you know, oftentimes American companies look at government restrictions as an impediment to business. I frankly, think that the kinds of proposals you have come forward with today will provide more confidence in American products overseas. Corporations in foreign countries will then be far more willing than they are currently, to let American products in over other nations' products.

It seems to me one further step is a step that you talked about. One of the reasons people buy certain countries' products is they have great confidence in the quality, in the effectiveness, and in the systems that they sell. Training in the use of chemicals, it seems to me, would increase that confidence, because even an acceptable chemical ends up being a hazardous chemical if improperly used.

One of the things Representative Synar, again, raised is the question of how we would pay for this proposal. Do we have a way to do that at the moment?

Ms. BROWNER. We would like to work with Congress to develop a funding mechanism so that we can provide appropriate training around the world. You are exactly right, that far too often the problem is the lack of training, a lack of understanding on the part of the people using the product as to what is appropriate and safe use. And so we think a training component is extremely important, again. If this country is to provide the sort of leadership that the rest of the world expects of us on these issues.

Mr. GEJDENSON. And later in the hearing we will hear from Kristan Phillips, an American who is disabled by an exposure to a banned U.S. pesticide while working in Hong Kong.

Can you say anything to Mr. Phillips to reassure him that we have learned a lesson from his experience?

Ms. BROWNER. The first thing that I would say to Mr. Phillips is that we are all, I think, very saddened and sorry for what has happened to him. It should never happen to anybody. I also want to thank him for coming forward and exposing the effects of current practices. I think the changes that we have presented here today and the work that we can do together will protect people like Mr. Phillips and others from experiencing the very negative effects that can occur from improper use of pesticides.

Mr. GEJDENSON. Thank you. Let me just say one additional note about Mr. Phillips and we will hopefully hear more about this when he comes up. But in conjunction with the President's statement about health care, one of the problems Mr. Phillips faced is that none of the health care that he had covered the medical needs that he had. The health insurance companies had particular exclusions for his particular situation. As we need to address national health care, it is one more example of the failures in the present system.



Ms. McKinney.

Ms. MCKINNEY. Mr. Chairman, I just have a question. I don't know if you can answer it. But I am just wondering how the United States can endorse a code of conduct and then not have its companies follow it.

Ms. BROWNER. The purpose of asking Congress to essentially reference the code of conduct in legislation is to give us an enforcement mechanism, to ensure that companies, in fact, do follow that code of conduct. I believe that there are many companies today that follow that code of conduct.

I want to make sure that every company in this country is following that code of conduct. And I think those following it, those companies that do follow it, that is also what they want.

Ms. MCKINNEY. And secondly, then, when we rely on these other countries that are technically competent, is there that gap over there as well?

Ms. BROWNER. In terms of the registration system?

Ms. MCKINNEY. In terms of the endorsement of the code of conduct and not the enforcement.

Ms. BROWNER. The reliance on other countries would go to the registration issue, which is if there is a chemical that has never been registered in this country and has never entered the EPA registration process, we would then look to see if three other countries with credible scientifically based registration programs had registered that chemical. So it is in that area that we would look to other countries and their actions to determine whether or not it is appropriate for the export of that chemical manufactured here to other countries.

But it is important to remember that we are also saying that any country that wants to notify the United States that they do not wish to receive a particular pesticide, that notification will be honored by us. They have that right and we will respect their right to tell us that they do not want to receive that pesticide.

Ms. MCKINNEY. I think perhaps I have a lot more to learn about this, but the question was, I guess, based or geared toward the intent of that particular foreign government.

Ms. BROWNER. In terms of their registration program?

Ms. MCKINNEY. Right.

Ms. BROWNER. Well, I think it is important and, obviously, we will work with the committee to ensure language that gives EPA and the Food and Drug Administration the kind of authority that we will need to evaluate those foreign governments' programs so that when we make a determination it is one that the consumers in this country can feel confident and comfortable with.

Ms. MCKINNEY. Thank you.

Mr. GEJDENSON. Thank you. Mr. Fingerhut.

Mr. FINGERHUT. Thank you, Secretary, soon to be Secretary Browner. It is good to see you again, and I want to publicly thank you for all the time and attention you have given to my part of the country. It is really, with all the industrial and manufacturing issues we face, you have really given us a lot of your time. We appreciate it.

Do we know what percentage of pesticides that are used or that Americans might consume as a result of the products we use, come

originally from this country versus how many come from foreign products? How much—the circle, I assume, refers to the fact that we create these products, send them overseas, they come back to us on our food and other products.

Ms. BROWNER. I don't know that anyone has been able to break down in a statistical fashion the percentages. What I think is important about what we are proposing here is, first of all, obviously the ban of exports on those things that have been banned in this country. But also the fact that if a pesticide is used on a food product that will be imported by this country, we will need to have a methodology for measuring the residual on that food product. Right now that is not required, unless it is a pesticide that has been registered in this country.

What we are proposing today, would require it for all food products. And the better agency to speak to that, because they have the enforcement authority, is the Food and Drug Administration, and they are here.

Mr. FINGERHUT. I ask the question because one of the arguments against this proposal, of course, is that the United States is only one producer of pesticides and if we take strong action, we are shutting down our domestic industry, but we are still going to be subjected to the same health risks because other countries produce these products and use them on the agricultural products that we then import. So I was trying to get a sense of—

Ms. BROWNER. Not if we can test for it. And I think that is an important part of this proposal. I also think, as I said in my opening statement, that we cannot underestimate the leadership we can provide to the world on this issue. And while obviously it is paramount that we ensure the safety of the food supply in this country and we do have a safe food supply, I also think we have an obligation to work with the people around the world so that their drinking water, so that their environment, so that the people of those countries are not adversely affected by pesticide use.

Mr. FINGERHUT. I agree, and it is a well-made point. I guess I am in the same position that Ms. McKinney is, that we are both relatively new to this issue and I am trying to think it through. And, of course, hearing from both sides, as you can imagine, so that the proposal that you put before us, the administration puts before us, places equally stringent testing requirements on foreign-produced pesticides that might find their way into this country as they would on domestically produced pesticides that go out and come back?

Ms. BROWNER. Well, first of all, any pesticide that is used in the United States, whether manufactured in this—in the United States or elsewhere, is subject prior to use to our registration process. And we have called for changes in that law to strengthen that law.

The second category are food products that would enter the United States. And what we are asking for today is a methodology for detecting residues. This is very technical. The company has to tell us how to find their pesticide if a trace amount remains in a food. They have to give us that methodology. We want to require that so that we and FDA, more appropriately, when they inspect food supplies entering the country, know exactly how to look for something.

We get that right now on pesticides used in this country. Pesticides are registered and then there are tolerances set for specific foods, so we get that in this country. We want to ensure that we have it on all food imports, not just foods imported with the pesticides registered in this country, but foods that might also be imported where pesticides that were never in the registration system here were used. Does that explain it?

Mr. FINGERHUT. It does.

Ms. BROWNER. I think what we have done is looked at the realities of this problem in terms of environmental protection, worker protection, and food safety, and put in place a series of mechanisms that ensure us that we achieve the protections in all of those areas that are so important. We come at this, I think, from many different angles simultaneously.

Mr. FINGERHUT. Well, I appreciate your testimony. Mr. Chairman, I appreciate you raising this issue. I am sure I have a lot to learn on it and I look forward to having further discussions, but let me thank you again for your work in this area.

Mr. GEJDENSON. OK. Let me thank you again. I am going to just have one last question in the process. But, you know, part of what we are doing here is what a name brand generally does. And we will do that for American products overseas. And it will come back and benefit both foreign workers and consumers and American workers and consumers. You can certainly buy chemicals from shady operators, even in this country, I imagine.

Most people don't, because there is a danger associated when you buy something and you are not sure how it works or who made it. Other countries, as their economies develop, are going to become tougher and tougher on what they allow in. And if we build a reputation of quality today, just as we are doing in automobiles and other places where we are starting to make our own market more successful at home and overseas; then the confidence we built here will give economic benefit to those very companies that are complaining today about what we are doing. Because sooner or later, the world is going to catch on. America's environmental leadership will continue to be an economic benefit to the country and it will guarantee the health of our citizens who pay the tax dollars that pay our salaries. We ought to be here to defend them and not one or two companies that are looking for short-term profits on chemicals that are poisoning people overseas and here.

I want to thank you for the leadership and courage you have shown in this fight, and for hanging in there. We have a few questions we will submit to you for later answer.

There are about 27 unregistered pesticides currently being exported. Can you get us that list. Again, you have been terrific. You have done the President proud, and the the country proud. Thank you very much.

Ms. BROWNER. Thank you, Mr. Chairman.

Mr. GEJDENSON. We have Mr. Michael Taylor, Deputy Commissioner for Policy, U.S. Food and Drug Administration; we have the Honorable James Lyons, Assistant Secretary for Natural Resources and Environment, U.S. Department of Agriculture; and it is my understanding that Lynn Goldman will be sitting in for Commissioner Browner. And I guess we will start with Mr. Taylor.



Please proceed when you are most comfortable.

**STATEMENT OF MICHAEL TAYLOR, DEPUTY COMMISSIONER  
FOR POLICY, U.S. FOOD AND DRUG ADMINISTRATION**

Mr. TAYLOR. Thank you, Mr. Chairman. I do appreciate the opportunity to appear before this subcommittee. And I am especially pleased to be joined today by Assistant Administrator Goldman and Assistant Secretary Lyons to discuss this administration's commitment to food safety and to strengthening our Nation's food safety laws.

I look forward to discussing with you the Food and Drug Administration's program for monitoring pesticide residues on imported foods, but to place this subject in context, I would like to take just a few minutes to describe FDA's role in ensuring the safety of the Nation's food supply.

FDA is, as you know, nearly a century-old, public health agency that is responsible for regulating most of the food supply, except meat and poultry, which are regulated by our colleagues at the Department of Agriculture. Our task is very large.

Americans spend some \$350 billion a year on food regulated by FDA. We cover fresh and processed foods, both imported and domestic, that are produced, processed or stored in some 47,000 regulated facilities in this country and imported from over 100 countries around the world.

FDA's paramount responsibility and commitment is protection of public health. We discharge this responsibility by establishing and enforcing standards governing such basic matters as the proper processing of canned food to prevent the risk of botulism, the nutritional adequacy of infant formula, the safety of intentional food additives and other food ingredients, the levels of environmental contaminants in food such as lead, dioxin and PCBs, and the safety of food packaging.

As you know, we are also responsible for enforcing the pesticide tolerances that EPA sets for pesticide residues in food. From a public health standpoint, FDA's top food safety priority is microbial contamination of food. There are millions of cases of food-borne illness in the United States every year, including several thousand that result in death.

We have devoted substantial resources to scientific research, standard setting, and enforcement activities in this area. Last Friday, Secretary Shalala and Commissioner Kessler announced a major new food safety initiative. We are proposing to require that all processors of seafood, both foreign and domestic, install systems of preventive controls, systems that are designed to build safety into products rather than relying on the detection and correction of problems after they occur.

We think this approach will make seafood safer and FDA more efficient in the use of its inspectional resources, and we think that the same principles of prevention of safety problems can be extended to other segments of the food supply. Our colleagues at USDA are working on a similar system for meat and poultry under the leadership of Secretary Espy.

FDA carries out its food regulatory responsibility on a budget that amounts to \$200 million per year. One of FDA's greatest and



continuing challenges is targeting its available resources in a way that yields the greatest public health benefit. There is always more that could be done in any area than available resources permit. Thus, our efforts must be guided by our experience and expertise regarding the nature and magnitude of the public health issues we face and the utility of the tools we have available to address them.

We try to assure that our level of effort is commensurate with the seriousness of the public health concern being addressed. It is in this spirit, Mr. Chairman, that we have constructed our pesticide monitoring and enforcement program. It is, of course, not possible to test all food, foreign and domestic, for the thousands of pesticide-crop combinations that could occur in the food supply. To carry out statistically representative sampling and analysis of even a few pesticide-crop combinations would quickly consume the entirety of FDA's food regulatory budget.

Moreover, we do not think such an approach is necessary or appropriate from a public health standpoint. Instead, we have crafted a pesticide monitoring enforcement program that relies heavily on multiresidue analytical methods that can efficiently screen sampled foods for over half of the pesticides that may be present in food. We target our sampling and testing on those pesticide-crop combinations that are most likely to result in the exposure of significant numbers of consumers to violative residues.

We are spending about \$20 million or about 10 percent of our total food budget on these activities this year, which permits us to collect and analyze some 20,000 food samples. Approximately 55 percent of these samples are from imported foods, the balance from domestic foods.

Our experience over the years is that the violation rates for pesticide residues are quite low. In 1992, the domestic rate was less than 1 percent. The import rate was less than 4 percent. Most of the violations among the imports were not for having high levels of residues above an applicable tolerance, but for having typically very low levels of residue in the absence of a tolerance for that particular pesticide-crop combination.

Three-quarters of the import violations involved pesticides that are the subject of one or more EPA tolerances for various foods, but not for the food on which the residue was found. We take the enforcement of pesticide tolerances very seriously. No violation is taken lightly, no matter how low the residue.

As an example of this strict approach, after finding a violative residue on an imported food, no matter how low the actual level of the residue, we automatically block future imports of that crop from that source until we can be satisfied that the violation will not recur. All things considered, Mr. Chairman, we believe our current monitoring and enforcement system adequately protects the American food supply from illegal or unsafe pesticide residues. But we are not content with the status quo. The public and public health sensitivity of this subject demand that we remain vigilant and continue working to improve our program wherever feasible.

We therefore strongly support the administration's effort to strengthen our pesticide laws, including the provisions regarding pesticide exports and enhanced FDA enforcement powers. Taken together, these measures will significantly improve the Govern-

ment's ability to endure that the U.S. food supply is protected from illegal or unsafe pesticide residues. We will have enhanced capacity to monitor imported foods for unregistered pesticides, and we will have a greater assurance that any pesticide leaving this country has been subjected to a meaningful safety evaluation.

Mr. Chairman, I do, again, appreciate the opportunity to appear before you today and I will look forward to answering the questions of the committee.

[The prepared statement of Mr. Taylor appears in the appendix.<sup>2</sup>]

Mr. GEJDENSON. Thank you. Mr. Lyons.

# **STATEMENT OF JAMES LYONS, ASSISTANT SECRETARY FOR NATURAL RESOURCES AND ENVIRONMENT, U.S. DEPARTMENT OF AGRICULTURE**

Mr. LYONS. Thank you very much, Mr. Chairman. It is a pleasure to be here. I want to thank you and the members of the committee for convening this hearing to discuss a very important issue and one that has lingered on for too long. I hope we are close to resolution. I certainly appreciate this opportunity to discuss the pesticide export issues as well as the administration's efforts to reform the United States' pesticide laws.

USDA has taken a very active role with the Environmental Protection Agency and with the FDA to devise reforms to existing pesticide laws which govern the export of U.S. pesticides. In fact, I think you are seeing something very unique here, Mr. Chairman; three agencies working together at the table as opposed to the conduct of the previous administration, often fighting, and I must admit USDA, often late to the table, attempting to address some very, very important public health and safety issues.

Our goal ultimately is to ensure that Americans' food, that is the food they serve on their dinner table, is the safest it can possibly be. Our work with EPA and FDA is the result of a genuine commitment on the part of the administration to comprehensively reform the Nation's pesticide laws. We have developed our proposals for legislative changes with full support of the Domestic Policy Council and we are working very closely with the President's Office of Management and Budget.

In that process, we adopted three basic principles for interagency deliberations. We agreed to develop a single administration position that presented a genuine opportunity to break the gridlock on pesticide reform and in particular offer resolution to the long-standing dispute over the export of pesticides. The result of our internal policy discussions is a set of comprehensive reforms to the Federal Food, Drug and Cosmetic Act, as well as FIFRA, which were presented in September before House and Senate subcommittees.

These proposals, once enacted, would provide improvements that would benefit consumers, the environment, and the agricultural community. These proposals on balance provide improvements in our ability to protect public health and the environment, while

<sup>2</sup>The publication entitled: "Food and Drug Administration Pesticide Program—Residue Monitoring 1992" submitted by the Food and Drug Administration is retained in the subcommittee file.

meeting the needs of the agricultural community for environmentally and economically sound production methods. We have offered a wide range of reforms, which include specific reforms to the process by which we regulate the export of pesticide.

In devising those specific reforms, we have attempted to provide sound and verifiable controls on pesticide exports, to increase public access to information on those exports, offer assistance to foreign countries in the use and handling of pesticides, and provide consideration for legitimate concerns of registrants. By offering these specific provisions, the administration has made significant progress to ensure protection of the environment and public health both here and abroad.

At the same time, we have respected the ability of foreign countries to make their own informed decisions on trade and environmental matters. We have also set a firm standard which will encourage product stewardship by companies and through technical assistance to other countries. The result of these efforts will also set a more level playing field for domestic producers who compete with foreign suppliers.

Finally, our proposals, by dealing decisively with the issues raised by the export of pesticide, reduce the uncertainty associated with investment decisions made by chemical manufacturers. As with all our legislative reform proposals, the pesticide export provision should be evaluated on the net improvements they offer to public health and the environment. In both regards, the administration has taken a leadership role in the responsible regulation of pesticides.

Although the details of our current proposal go somewhat beyond our earlier public statements, they are consistent with our overall intention to provide a genuine starting place for resolution of this long-standing controversy.

We appreciate your interest, Mr. Chairman, in furthering public discussion and resolution of these issues and I want to commend you, Mr. Chairman, for your continuing leadership in attempting to resolve this issue. I want to thank you for the opportunity to appear before you today.

Mr. GEJDENSON. Thank you. I thank the panel for being with us.

One of our witnesses on the next panel, Richard Wiles, will argue that east coast FDA labs are testing imported produce much less thoroughly than FDA labs elsewhere. He says the east coast labs run their multiresidue tests at half their capacity and rarely use single residue tests.

Are my constituents at this stage less safe than those people on the West Coast or other places in the country?

Mr. TAYLOR. No, indeed, Mr. Chairman, they are not. I would have to know the full particulars of Mr. Wiles' criticism in order to respond in detail, but it is the essence of FDA's program that we make judgments about how to use our analytical resources based on what we know about the foods we are looking at, about the chemicals we are looking for, and the way in which we can most effectively in a particular environment use those resources to meet our goals of ensuring that we are not having violative residues or unsafe residues in food.



Mr. GEJDENSON. So have you reviewed the results from the east coast and West Coast labs?

Mr. TAYLOR. I have not personally reviewed those results.

Mr. GEJDENSON. Well, I would like you to do that.

Mr. TAYLOR. We would be happy to do that and can give you a full answer to that concern for the record.

[The information follows:]

Certain "East Coast" FDA district laboratories do not perform the same number or types of analyses as FDA district laboratories located elsewhere. To a large extent, such differences exist because there is less potential for excessive or a wide range of pesticide residues in imported foods collected in the Northeast than in foods collected in other areas of the country. FDA's national pesticide residue sampling plan is designed to uncover major residue problems in foods distributed and consumed nationwide. Sampling plans consider the domestic food produced and imported food offered for entry in each of six FDA regions; thus, the coverage reflects the importance of food/pesticide combinations originating in or offered for import in each region. For example, FDA's Boston and Buffalo districts are primarily responsible and sampling foods produced in the Northeastern U.S. and those imported mainly from Canada and Europe. Because produce from these areas is likely to be exposed to fewer kinds or numbers of pests as food produced elsewhere, fewer and/or smaller amounts of pesticides may be needed for crop protection. Hence a lower violation rate is generally observed for these foods as compared to foods sampled by FDA districts located in the major U.S. agricultural areas, or as compared to foods imported from countries with tropical or sub-tropical climates.

Accordingly, FDA does not believe it is necessary or appropriate to provide coverage for foods collected in the Northeast identical to that for foods sampled in more agriculturally oriented areas, or ports of entry for foods from tropical/sub-tropical regions. While foods from the latter two areas may be distributed widely throughout the U.S., many are sampled at the point of origin or entry into the country, and analyzed for residues by "Southwestern" or "Western" FDA districts. The broader analytical coverage afforded by these districts therefore encompasses foods distributed and consumed throughout the U.S. FDA does not share belief there is reason to be concerned about the safety of foods consumed by East Coast consumers relative to pesticide residues.

The Agency also disagrees with the allegation that FDA "East Coast" laboratories rarely use single residue methods. In the report "Pesticides in Children's Food", the authors base their observations on examination of data from FDA's tolerance enforcement program alone. The authors failed to observe that "Incidence and Level" monitoring, another major component of the FDA pesticide program, stresses single residue methods and limited scope multiresidue method usage by all FDA laboratories. All "East Coast" laboratories, like the FDA laboratories in other areas of the country, conduct numerous selective surveys for residues of pesticides that can only be detected by single residue methods. In fact, two Northern FDA districts have been solely responsible for analyzing 3,200 samples that either have been or will be collected over a 2-year period as part of FDA's statistically based monitoring survey.

In sum, the variations in FDA laboratories' coverage of pesticide residues is by design, not neglect. Broader analytical coverage is centered in districts sampling domestic and imported foods that pose the greatest potential for pesticide residue violations. Over the years, the majority of imported produce violations have been observed in foods sampled in areas of the United States other than the East Coast.

Mr. GEJDENSON. It seems to me that the testimony is going to indicate they find there are about 50 percent—they find 50 percent of the problems. It seems to me we have basically the same food across the country. If they are not running tests that are as accurate or as extensive, on the east coast as on the west coast, then there is a problem. There is no reason that my constituents should get a lower quality of testing than constituents in other parts of the country.

Mr. TAYLOR. There is no question about that, Mr. Chairman. And I would be happy to explain fully the way in which that testing is

conducted in the Northeast and respond to that question. Because I agree with your premise completely.

Mr. GEJDENSON. One of the things that is argued by the industry is that U.S. jobs will be lost if we restrict these chemicals that are outlawed in this country. But my argument to the Secretary continues to be, that there is an advantage inherent in having a safer product on the international market and that advantage will make your product a better competitor.

Mr. TAYLOR. Absolutely, Mr. Chairman. I mentioned earlier our seafood initiative. There is a very important international trade dimension to that program. The system that we are installing here is one that is increasingly being recognized by our major trading partners, by the European Community, as well as our major seafood trading partners such as Canada, New Zealand, Australia.

In order to maintain, in the new competitive and quality-oriented international trade environment, in order to maintain, for example, the half-a-billion-dollar export market for seafood that we have in this country just to Europe alone, we have got to have these sorts of safety standards built into American products.

I think there is an increasing recognition certainly in the industries that we regulate that that kind of quality does have to be built into products. The U.S. pharmaceutical industry is one of America's most competitive industries in the international environment. It is subject to the world's most rigorous oversight to assure the safety and effectiveness of those products and I don't think those two are just coincidental.

Mr. GEJDENSON. The FDA allows importers to hold on to imported produce while the FDA tests it for illegal pesticides. But the GAO says that a third of the time the importer has already distributed the produce by the time the FDA tells the importer the shipment has been tested positive.

Does the FDA penalize these importers for releasing products early?

Mr. TAYLOR. Unfortunately, Mr. Chairman, I think this highlights a weakness in the current statutory scheme for regulating imports generally, not just imported food products that we are testing for pesticides. The only penalty under current law for the person who releases food before we give the go ahead, is to forfeit a bond under which the goods were being maintained in the custody of the owner.

Mr. GEJDENSON. A bond being the value of the food?

Mr. TAYLOR. Bond being the customs bond, which can be up to three times the value of the raw commodity, but far short of what the commercial market value is of the ultimate food product.

Mr. GEJDENSON. So it is to his advantage to ship, no matter what, and hope that his product is OK?

Mr. TAYLOR. There certainly are economic incentives to take a chance like that. We need and we have been working with—

Mr. GEJDENSON. Because if you kept it there, and you told him that he couldn't ship it into the country, he would actually lose more money.

Mr. TAYLOR. That is correct.

Mr. GEJDENSON. All right. So that the incentive in the present system is that I ought to ship my product before I get the results

from FDA, because if I wait for results, I might not be able to sell it. If I sell it, the penalty is far less than the profit from the sale.

Mr. TAYLOR. That is precisely the calculation.

Mr. GEJDENSON. So if that happens a third of the time, or even if it happened half of that, it seems to me that my conclusion is that the system doesn't work. Is that your conclusion?

Mr. TAYLOR. The system certainly provides an incentive for companies to release products before we have given the go ahead.

Mr. GEJDENSON. Do you need a change in the law to deal with that issue? Or can you do that by regulation?

Mr. TAYLOR. There needs to be a change in the law to make it a prohibited act under the food and drug laws to release goods before we have given the go ahead. We also would need additional statutory authority to impose meaningful civil penalties to economically deter that kind of conduct. We have worked with, and continue to work with, the relevant legislative committees.

I would welcome the Congressman's help on this.

Mr. GEJDENSON. Well, we hope that your folks could draft the necessary proposal as quickly as possible. And I can assure you that there are a number of people on this panel, as well as Mr. Synar and others and myself, who will be happy to lead an effort to change that situation. It just seems to me insane to have a situation where the incentive is not to wait to hear what the test results are.

Ms. McKinney.

Ms. MCKINNEY. I just have one question for Mr. Lyons. Are American farmers hurt by these new policies?

Mr. LYONS. No. To the contrary, I think the policies we are advocating would actually help American farmers by allowing all our producers to operate on a level playing field. I think it is blatantly unfair for us to export products that have been canceled or suspended for health reasons here in the United States for possible use overseas, even though technically those products aren't to be used on products that may be imported back to the United States. So we want to straighten that out as a part of this proposal.

Ms. MCKINNEY. And so you expect smooth sailing in the Agriculture Committee?

Mr. LYONS. Well, we are going to work with our friends on the Agriculture Committee. I don't think this is an element of what we have proposed that there is a great deal of dispute about.

Ms. MCKINNEY. OK.

Mr. GEJDENSON. The gentleman from California.

Mr. ROHRABACHER. I will just throw this out to the panel. How much of the world's pesticide supply comes from the United States?

Ms. GOLDMAN. The statistics on the world pesticide supply are not great, but we believe that it is somewhere in the range of between 10 and maybe 30 percent, depending on the country.

One of the reasons why we are proposing as a part of our proposal technical assistance activities and also multilateral coordination with other countries and the proposals about corporate stewardship practices is that we recognize that, by making an impact on our own exports, we can only impact a small proportion of the problems that are out there, and so we think that it is a good way to set an example and provide leadership for the rest of the world.



But we must go beyond that and actually provide technical assistance and engage in multilateral discussions in order to really address the entire problem.

Mr. ROHRBACHER. So, as you say, only a small proportion of the world's pesticide supply comes from the United States, and what we are saying will directly affect only them, only that small portion.

Of the U.S. pesticide exports, are there competing products for those exports, meaning when we manufacture something and export it overseas, is it readily available from an international competitor?

Ms. GOLDMAN. For some there are and for some there are not. For example, chlordane, which is banned for most uses in the United States, has one producer, which is a U.S. manufacturer which exports chlordane.

Some of the others—

Mr. ROHRBACHER. Where do we export that to?

Ms. GOLDMAN. We export that all over the world, actually, to a number of places.

Mr. ROHRBACHER. So the other countries actually have a different standard, health standard, in terms of that pesticide than we do?

Ms. GOLDMAN. Well, I think that it would be a misnomer to speak of it as a health standard. In our technical assistance work that we do with developing countries, what they tell us is that in many cases they do not have the capacity to develop a health standard, and they come to us with questions that are of an extremely basic nature, such as do you still use DDT in the United States.

There is a considerable amount of misinformation or lack of information in developing countries because there is not a great capacity to perform some of the science work that you need to perform to make a health-based determination about a pesticide.

Mr. GEJDENSON. Will the gentleman yield for 1 second?

Mr. ROHRBACHER. Certainly.

Mr. GEJDENSON. Additionally, of 27 banned pesticides that are made in the United States and 27 of these that are banned or unregistered here, 15 of those are only made in the United States. So almost half of the ones that we are concerned with in this category are not made in any other country. And, as the gentleman will see in one of our next panelists, the impact isn't just theoretical on Americans. It is very direct.

Mr. ROHRBACHER. Of course, when we are talking about some of those banned pesticides, we are not talking about necessarily that that product itself is made overseas but there are competing products for that purpose for which that product is made, and—

Ms. GOLDMAN. There are also competing products for those purposes that are made by U.S. companies who then could come in and compete for that marketplace if those riskier pesticides were not available for export.

Mr. ROHRBACHER. Well—and there is a debate as to what the standards should be. Some people believe—

I remember when I was a kid running behind the DDT truck. I mean, I would always run out. The DDT truck would come



through, and I would run behind the truck. And I guess that is why I became a Republican. That is what they are going to say over here.

It didn't affect me at all, but the bottom line is that there is a debate as to whether or not—how high safety standards should be. Obviously, in some countries, in developing countries they may not—the cost effect of having a certain standard may not be what they want. They are willing to take more risk because the cost may cost them in other areas. They may have to withdraw some funds from other areas in order to pay for something with a higher standard.

Maybe those other things that they are not spending the money for may be more risky to the health of that country than the pesticide level.

I am sometimes skeptical that Americans are overly concerned with the pesticide issue. Not to say that there isn't a legitimate concern. But that we may be willing, because we are a rich country, to set high standards for products that basically take into the fact that we have some leeway with our own finances where with some other countries, where you have bugs that are eating away at their crops and they need something to handle that and if they do so at a higher expense it really does impact on the quality of their life in other areas.

Feel free to comment on that.

Ms. GOLDMAN. Well, I think that, actually, U.S. industry produces a large panoply of pest control agents that can cover bugs that occur throughout the world and can treat those pest problems in a safer manner than some of the pesticides that we have banned in the United States, and I do not think there is a shortage of alternatives.

What we hear from people in developing countries is that they are desperate for real information about the risks of these pesticides and how to handle them and that they do not want to see on the international market pesticides that have been banned by the United States and other developing countries. They feel if it is not good enough for our people, it is not good enough for their people either.

Mr. ROHRABACHER. But they are perfectly free to do that. They are perfectly free.

Ms. GOLDMAN. What this would do is strengthen the law by saying that if they state that they do not want to have a pesticide imported into their country that we would actually be able to enforce that. We could make a real commitment to the concept of prior informed consent for the pesticides we haven't banned and then for the few that we have. And it really is just a handful, some 30. We wouldn't export them at all.

Mr. ROHRABACHER. Well, if some other country—I mean, I have to believe that the people of other countries, even poor countries, are very concerned about their citizens. And when you say that there is not information, we are not talking about just giving out information here, we are talking about actually precipitating, making the decision ourselves that they will not import this particular product, whether or not they have the information or not. Don't you think it makes sense to let those countries determine what stand-

ards they are going to have for their own society rather than after they have the information imposing that upon them?

Ms. GOLDMAN. We are not proposing to impose our standards on them. But what we are proposing, is similar to what we require with drugs. The Federal Food Drug and Cosmetic Act says that a drug that we will not register here, such as thalidomide, we will not export that drug to Chile, say. Even if they say that they want that drug, we will not export that drug.

Just as we have drugs that may cause birth defects in children, we have pesticides that may cause birth defects in children. And I think that we want to show the leadership that we would not export those pesticides either.

Mr. GEJDENSON. If the gentleman would yield. Again, the issue here goes beyond simply what we are willing to export. The principal involved is that these chemicals come back in the food we end up eating, so it has a direct impact on American consumers.

If you sell a pesticide in Latin America that is banned here because we don't want our apple growers or our vegetable growers to use it; and if they use it south of the American border and those products then come back into the United States and American consumers eat them, then the pesticide residue ends up in those American households.

Mr. ROHRABACHER. I think it is a totally legitimate position for us to say that we are going to regulate the pesticide levels in products that are being imported into the United States to the same degree that we regulate that of our own products.

However, take the example you just gave us of thalidomide. I understand there are some very legitimate uses for thalidomide for other areas rather than pregnant women. And in some other health treatments it actually helps people. It helps improve people's health. Now, for us to make the decision that because there is a health problem related to thalidomide that we are then going to ban the export and make the decision whether or not it will be used for other health care treatments, I think would be rather arrogant on our part.

Ms. GOLDMAN. Well, we have made that decision. That is the law in this country, and I think what we are saying is that we feel that pesticides are also very potent agents and that we should have a parallel policy. Perhaps the FDA would like to comment on that.

Mr. TAYLOR. It is a principle that is built into the public health statute that we implement that exports are subject to the same basic standards as products regulated here. There are exceptions, just as the policy we are developing here would create exceptions, too, in certain circumstances.

But there is a responsibility, I think, that we have here in the United States. And, as the Chairman points out, there is also the very real possibility that we need to be able to guard against with respect to residues coming back into this country.

Mr. ROHRABACHER. We certainly agree on protecting our countrymen from residues coming back in.

Thank you very much, Mr. Chairman. Thank you.

Mr. GEJDENSON. Thank you. Mr. Fingerhut.

Mr. FINGERHUT. I just wonder whether we have any medical knowledge of the effects of chasing behind DDT trucks. I am more

concerned about Mr. Rohrabacher's health right now than I am about this legislation.

I don't have anything additional to add.

Mr. Taylor, you were here when I asked Director Browner the question about how much of the pesticides that are coming back into this country are, in fact, part of the so-called Circle of Poison. I am wondering—she suggested that perhaps there were others that were better equipped to answer that question. I wonder whether you have better information in that regard.

Mr. TAYLOR. Well, what we do know is when we have looked for residues of pesticides that are on the list of unregistered pesticides that are potentially exported from this country, what we can tell you is how frequently we find those residues in imported food. We occasionally do.

In 1992, out of some 21,000 or more analyses, opportunities to find such a residue, we found them in 26 samples out of 21,000.

What we can't tell you, though—

Mr. FINGERHUT. Excuse me, you found 26 samples—I want to make sure I understand—of domestically produced pesticides that were coming back into this country on imported agricultural products?

Mr. TAYLOR. What we can tell you is that, in that number of instances, we found residues of chemicals that are on the list of unregistered chemicals in the United States. What we can't tell you is whether that particular residue on that food sample is present because of the use of a U.S.-produced version of that product or a foreign-manufactured version of that pesticide product, so we don't know the answer the extent to which these chemicals coming into the United States is as a result of U.S.-exported pesticide products as opposed to foreign-manufactured products.

Mr. FINGERHUT. The number, again, was 26 samples out of 21,000 pieces examined?

Mr. TAYLOR. That was in 1992.

Mr. FINGERHUT. In 1992. Just out of curiosity, if that is the number for the incidences of domestically produced chemicals or similar chemicals—I understand your answer—what is the total number of items that were brought in that had pesticides in excess of the allowed amount under our law, whether it was from a domestic chemical or a foreign chemical?

Mr. TAYLOR. The violation rate for all imports is that about 4 percent of all samples either contain a residue in the absence of a tolerance or a residue above an applicable tolerance.

Mr. FINGERHUT. So if I took 4 percent of that 21,000, I would have the number of times you have had to stop a product coming in out of that 21,000 sample, is that right?

Mr. TAYLOR. Well, when we detect a violative residue, we hold the product.

Mr. FINGERHUT. So about 800-some times out of 21,000 you found a violation?

Mr. TAYLOR. Rather than you and I do that calculation here, we would be happy to provide it.

Mr. FINGERHUT. I am just trying to get a rough calculation.

[The information follows:]



In 1992, FDA analyzed 16,428 samples for pesticides under its regulatory monitoring program. Of these, 7,777 were domestic samples and 8,651 were imports. Of the import samples analyzed, 298 (3.4 percent) surveillance samples and 116 (14 percent) compliance samples were violative.

Most samples collected by FDA are "surveillance" samples; that is, there is no prior knowledge or evidence that the specific food sampled contains illegal pesticide residues. "Compliance samples are collected and analyzed as a follow-up to the finding of an illegal residue or when other evidence indicates that a residue problem may exist. Thus, the violation rate for compliance samples is reasonably expected to be, and is, greater than that for surveillance samples.

Mr. GEJDENSON. While you are getting that, can we see of the 800-some incidences how many times you actually prevented distribution of the food product? Because, as we saw in the restaurant in Atlanta, you found the residue, but the food had already been distributed. The damage had already been done to the American citizens and consumers.

Mr. FINGERHUT. Absolutely.

Mr. TAYLOR. We can provide both of those. Sure.

[The information follows:]

For fiscal year 1992, a total of 414 shipments were found violative. They were disposed of as follows:

Product detained/refused entry .....	366
No action indicated on shipment .....	13
Detained product was released .....	11
Detained product was released, with comment .....	1
Product has been recalled .....	1
No information reported .....	22
Total actions .....	414

Mr. FINGERHUT. So, out of the roughly 800, only 26 of them were domestically produced or similar production. Which means we have a huge—forget whether 26 is a large number or not. We have a huge problem of importing food products with pesticides that are made abroad. That is a dramatically larger problem than the circle alone is.

Mr. TAYLOR. I will leave it to you to make a judgment about the magnitude of the problem. The violation rate is 4 percent or less.

And, in most instances, we are talking about situations in which you have got a very low residue of a chemical that is typically in the 10th of a part per million range which is violative because there is no tolerance covering the presence of that residue on that commodity. It might be a pesticide that is indeed in three-quarters of the cases that is registered for use here, has U.S. tolerances that would allow the chemical on other foods at much higher levels, but it is violative because it doesn't have a tolerance here.

We take that very seriously, and we detain that product. We prevent shipments, future shipments, until we can be sure that that violation is corrected.

But our judgment is that, given the level of these residues, there is not typically a food safety concern involving that particular shipment of food. But there is no question that our goal is to reduce to the absolute minimum violative residues, whether they pose a safety concern or not.

Mr. FINGERHUT. I know I am asking to pull numbers out of your hat, and you will clarify this in writing, but if 4 percent is the total

amount that is violative, do you have a rough guess what percentage you deem to have a safety risk?

Mr. TAYLOR. It is very rare. It wouldn't rise to the percent level because, again, the vast majority are at the 10th of a part per million kind of level.

Let us compile some information for you and point to some instances, if we can find them, where we think there would have been a public health concern.

[The information follows:]

Of the approximately 4 percent of import samples that had violative residues, approximately three-quarters of them represented samples that contained residues of pesticides that have approved uses and tolerances in the United States, but not for the particular commodity on which the pesticide residue was detected. Furthermore, the residue levels in these situations are frequently well below the U.S. tolerances set for the allowed commodity uses. For this reason, although these residues are illegal, we believe that the amounts found are unlikely to pose a hazard to consumers.

Only 1 percent contained residues of pesticides that exceeded U.S. tolerances, a violation rate similar to that of domestic foods. Even so, FDA does not believe that these violations present an imminent public health threat. Generally, if a consumer eats a food containing a pesticide residue in excess of an established tolerance, such an exposure on a one-time or infrequent basis would be unlikely to present an imminent hazard to health. An imminent hazard might be posed by the residue of an acutely toxic chemical, but such violations have proven to be extremely rare.

Mr. FINGERHUT. Clearly, one story like the Chairman's is too many, but it is helpful also to know the magnitude of what we are talking about. Thank you.

Mr. TAYLOR. Absolutely.

Mr. GEJDENSON. Well, we thank this panel, and we will continue.

We look forward to getting that information, particularly on the differences between the East and West Coast labs. It seems to me, at least, all Americans ought to expect the same standard of examination of the products that they consume.

Mr. Jay Vroom, president, National Agricultural Chemicals Association; Ms. Sandra Marquardt, Greenpeace Action, accompanied by Kristan Phillips; Richard Wiles, director, Agricultural Pollution Prevention Environmental Working Group.

I think I would like to start, if possible, with Kristan Phillips, just because I want to make sure that my colleagues hear his story.

[Audio tape was played.]

#### STATEMENT OF KRISTAN PHILLIPS

Mr. PHILLIPS. Good morning. My name is Kristan Phillips. I played the timpani drums on that brief piece.

I am physical testimony that U.S. citizens overseas as well as foreign nationals are affected by the Circle of Poison. I am here today to ask that you stop the manufacture and export of pesticides that are banned for domestic use.

The Circle of Poison begins with the EPA practice of allowing export of pesticides so dangerous that they are banned for use here. I am dying proof that these banned pesticides return to the United States inside Americans, thus completing the Circle of Poison.

Six years ago I was an accomplished symphonic timpanist with the Hong Kong Philharmonic Orchestra. I had graduated from the Julliard School of Music and undergone more than 39,000 hours of practice to become a professional. I had performed in many orches-

tras and international festivals, playing some 2,000 concerts in 16 countries under more than 90 conductors such as Maxim Shostakovich and Andre Previn.

By June 1987, I had 13 years experience as a solo principal timpanist. In recognition for my research, pending patents and upcoming publications, I was appointed as timpani lecturer for the Percussive Arts Society international convention. In short, I was a world class timpanist.

My career was abruptly terminated on June 21, 1987, when I was gassed with pesticides at the Hong Kong Academy for the Performing Arts.

Exposure by fogging to a mixture of chemicals that included chlordane and heptachlor left me with burning eyes and difficulty breathing. I became dizzy and disoriented. My body was trembling uncontrollably, and I was literally foaming at the mouth. My legs buckled as I struggled to escape the building. It was like being in a gas chamber, my own holocaust.

No one would disclose the chemicals used, the antidotes, the detoxification procedure and label information when I required emergency hospitalization and detoxification.

Today I am left with the strength, endurance and coordination of a 6-year-old child. My auditor memory skills are those of a 9-year-old. I had most of my symphonic music memorized before this happened. I have double vision, balance loss, constant and intense ringing in my ears—it is like a freight train standing 100 feet from a track—severe liver damage, digestive upset, essential amino acid dysfunction and damage to my body detoxification systems.

My doctors tell me I should not father children due to the high risk of birth defects.

Doctors have told me that as a result of my overseas exposure to the pesticides, including chlordane and heptachlor made by the Tennessee Company Velsicol Chemical Corporation, my body has been made so toxic that if I were a building I would be condemned and subject to immediate demolition. I look forward to chemically induced AIDS, malnutrition, cancer and a premature death.

I have been told that because some of these pesticides are stored in my fat tissue, minimal exercise causes the pesticides to be re-released into my blood, forcing me to experience yet again the trauma of acute pesticide poisoning.

My neurological damage is permanent. I function only a few hours a day. Gone forever is my ability to move my hands over 1,200 times per minute with accuracy and grace. I have been declared both physically and mentally incompetent by a Wyoming court due to pesticide-induced brain damage.

My Hong Kong employment visa was not renewed after I was poisoned. I was forced to return to the United States where all my attempts to get the necessary medical treatment have been stonewalled. I did not have, and I still do not have, the money required for detoxification treatment to stop my continuing decline.

Millions of people in their native homelands to where Velsicol and other companies export their pesticides do not have the knowledge, the money, nor the legal system to hold American corporations accountable.



Please ban the export of these chemicals. Never again should there be the pain, suffering and premature death of a common man condoned by the U.S. Government at the hands of U.S. manufacturers who rely on ignorance, inadequate legislation, loose enforcement and lack of respect of human rights in a foreign country for their profits.

Millions of Americans travel abroad annually. It happened to me. It could happen to all of you. Please use my experience as a lesson. It is too late for me. It is not too late for you. If a pesticide is too dangerous to use in the United States, it is too dangerous to use overseas. Ban the manufacture and export of these pesticides now.

Thank you.

Mr. GEJDENSON. Thank you, Mr. Phillips.

[The prepared statement of Kristan Phillips appears in the appendix.]

Earlier when we spoke I asked you about your medical coverage. And were you insured at the time of your accident?

Mr. PHILLIPS. I was very highly insured.

Mr. GEJDENSON. Did you have an American health plan?

Mr. PHILLIPS. Yes, I did. It was with Aetna Corporation, Aetna insurance.

Mr. GEJDENSON. Have they covered any of your medical bills?

Mr. PHILLIPS. Absolutely nothing.

Mr. GEJDENSON. On what basis did they refuse to cover your medical condition?

Mr. PHILLIPS. Several of these companies, when I had insurance, refused because there is an exclusion for inhaling gas products, gas chemicals.

Mr. GEJDENSON. In the insurance policy?

Mr. PHILLIPS. Yes, sir.

Mr. GEJDENSON. Just an additional challenge for our society domestically. The President spoke of it yesterday, the fact that so many Americans who do have health care find out when they need it that it is not there. And, while we can't do that in this committee, hopefully for yourself and others with preexisting conditions when we deal with health care there will be some answer to your medical needs. Thank you.

Mr. GEJDENSON. Before asking questions we will go back to the regular order, and we will start with Mr. Vroom and work our way down.

#### STATEMENT OF JAY J. VROOM, PRESIDENT, NATIONAL AGRICULTURAL CHEMICALS ASSOCIATION

Mr. VROOM. Thank you, Mr. Chairman.

I appreciate the opportunity to be here before you again, just less than 2 years since we visited in this committee and Sandra Marquardt and I shared a panel. I think we have some very positive progress to discuss with you today that has occurred since our hearing conversations of 2 years ago.

First of all, you have heard representatives of the U.S. Government talk about some of the things that have been done. Carol Browner and Lynn Goldman discussed the fact that the U.S. Government has made substantial improvements in Section 17 regulatory programs.



U.S. EPA in February of 1993 made final substantial changes to the regulatory requirements under Section 17 of FIFRA. They embrace additional labeling requirements that exporters of pesticide products from the United States must comply with. The EPA notification of other governments when EPA takes significant regulatory actions was streamlined and enhanced, and, generally, these changes made in the early days of the Clinton administration are very positive, and NACA and our member companies have been very supportive and active in complying.

Likewise, the General Accounting Office has issued reports that are enumerated in our advanced written statement and have been referenced also earlier in testimony. The October 1993, FDA Imports Violation Report that they issued was, I think, a very positive report. Mr. Taylor spoke to that a little while ago in terms of the actual FDA violations reports.

Foreign Regulation of Pesticides, GAO report July 1993, spoke again positively to the equivalency in particular of other developed countries in their enforcement and standards of pesticide regulation and in particular those members of the Organization of Economic Cooperation and Development, OECD, countries and their equivalency and the work that is going on between those countries and U.S. EPA to ensure high standards of pesticide regulation around the world.

And, finally, the GAO report on the Comparison of U.S. and Mexican Pesticide Standards and enforcement offered some insight into the improvements that have been made in recent years by the Mexican Government in pesticide regulation. It is also a very positive indicator.

The components addressing pesticide exports in the so-called Keystone report on food safety and pesticides made final last year also speak to places where we can focus our improvement and attentions, and we are certainly doing that from the industry's point of view and believe that the Clinton administration and EPA in particular are following through on some of those identified opportunities.

In the international arena, activities include the passage of NAFTA by Congress, and we hope the expected confirmation of GATT as well later this year, both including very significant advances of harmonization of pesticide standards within those trade agreements.

The U.N. food and agriculture and UNEP organizations have further enhanced and implemented fully the prior informed consent code of conduct provisions which our member companies in NACA have been fully supportive of over time.

Last fall our board of directors affirmed our members' commitment to the U.N. PIC code with a resolution, and we also are working on an internal compliance manual to be published this spring for the benefit of our members.

Additionally, our association and our counterparts in our international federation GIFAP and the European Crop Protection Manufacturers Association have been working intensively for the last year jointly on a concept to develop an international manufacturers code.

We are looking for a way to get the United Nations to adopt that kind of a concept which would speak to the questions that you raised of us at this hearing 2 years ago about manufacturing minimum standards, if you will, by manufacturers of competing pesticide products coming from lesser developed countries.

The industry voluntary initiatives include the continuance of our supplying of information to FDA of information regarding our unregistered export products from NACA member companies, including the country and crop of use intended and the practical method of detection. Both of these components of information we have been supplying, as outlined in my letter to Commissioner Kessler of November 1, 1991. And Mrs. Browner spoke to exactly these kinds of requirements as the Clinton administration's proposal is being developed and written into law.

We are already voluntarily complying from NACA member companies with those concepts. More of our formerly unregistered active ingredients have gained U.S. registration or import tolerance or are very close.

The list that we shared with you 2 years ago of those compounds that our member companies export numbered 26, and there are several of those products that have either been granted a U.S. import tolerance or have—are very close to being granted registration or have been granted registration by U.S. EPA. So progress continues on that front as well.

We have also spoken about the interest that we all share in making certain that advances are made in terms of product stewardship and worker safety in particular in lesser developed countries.

Two years ago, I described an initiative that our member companies support internationally, a pilot project for safe use development, a very intensive effort in three pilot countries—Kenya, Thailand and Guatemala. I can tell you that last year I had the opportunity to visit the Guatemala project, met extensively with all three country project directors and am personally involved in the guidance and oversight of those efforts globally.

If it were not for your hearing today I would be in Europe today meeting with our European and Japanese counterparts where we had planned to work on further expansion of this safe use effort and guidance and expansion of the efforts that we have had under way for about the last 2½ years.

I brought along some photographs I would like to share with you after the hearing that I took in Guatemala while visiting with farm workers, their families, schoolteachers and housewives of farm workers, all of whom have been positively impacted by this effort to intensively train and educate people throughout the communities where our products are used, and we are proud of the progress that has been made.

We have also been working, trying to find some assistance in expanding the use of these safety education programs through efforts such as those that are under way by the U.S. Agency for International Development and the World Bank. We would appreciate any help that you could give us in encouraging some support of AID and encouragement in broadening the impact of those programs.

Let me wrap up here by just mentioning the jobs impact.

Certainly there are a number of considerations, and safety and stewardship are at the top of our priorities from my member companies' point of view, but jobs are representative in this country also of the economic activity of the export of our products. We talked a little bit.

You talked earlier in this hearing about the size of the international pesticide industry. Ms. Goldman didn't have an exact figure for you. I can tell you that reliable statistics show that international pesticide sales by manufacturers are in the range of \$24 billion. U.S. sales in total are about \$7.5 billion, of which about \$2 billion are export sales. We contribute a very positive contribution in the terms of balance of trade. Our exports vastly exceed our imports, and the unregistered pesticide exports, those products not registered for use in the United States that are exported by our member companies, include about \$700 million in sales.

Commerce Department figures say that for about every billion dollars in export sales the United States enjoys an average of about 20,000 domestic jobs. So even a conservative estimate of that factor from Commerce would say that our member company unregistered exports represent about 10,000 jobs indirectly, and direct employment in our industry for that \$700 million in sales is over 3,000 professionals in our industry.

You have heard us explain before, of course, that registration by U.S. EPA of a pesticide simply addresses the regulation of its use in the United States, and virtually all of our products that are exported by our member companies are registered in one or more developed country around the world, and all of those products are registered in a country where they are to be used. Otherwise, our member companies would not export those products.

Our products certainly have benefits in the countries where they are used. They protect crops and public health and improve the lives of the people where they are used.

Our member companies are not the only commercial operators in the United States who have jobs at risk from unnecessary regulation of exports of pesticides. Many smaller specialty pesticide manufacturers also export products. While generally much smaller in total volume dollars, in some cases this business represents a much greater share of those companies' total business activity.

I believe that my colleagues at both the Chemical Producers and Distributors Association and the Chemical Manufacturers Association may submit written testimony to you later following the hearing to speak to the record about the jobs impact concerns of their individual members.

Again, I emphasize that safety and stewardship are our number one concerns. We very much empathize with those who are unfortunate victims of the misuse of any of our products or any other technologies, and we look forward to working with you and EPA in particular in looking for ways to further advance the progress in particular that has been, I think, exemplary in the last 2 years.

Thank you very much.

Mr. GEJDENSON. Thank you.



[The prepared statement of Mr. Vroom<sup>3</sup> appears in the appendix.]

Mr. GEJDENSON. Mr. Wiles, Director, Agriculture Pollution Prevention Environmental Working Group.

**STATEMENT OF RICHARD WILES, DIRECTOR, AGRICULTURAL POLLUTION PREVENTION ENVIRONMENTAL WORKING GROUP**

Mr. WILES. Thank you.

In the past year the scientific community has spoken with unusual clarity on the health risks of pesticides and the failure of the current regulatory system to protect the public health, particularly the health of infants and children.

The Clinton administration has responded to these findings with an unusual consensus between the EPA, USDA and the FDA calling for legislative reform designed to reduce the public health risk of pesticides and pesticide residues in food.

The question before this committee today is whether or not the increasing importation of fruits and vegetables undermine these risk reduction goals. An equally important issue is whether or not the FDA can assure the public that imported food meets U.S. safety standards.

Our analysis of the FDA's own pesticide monitoring data indicates that these assurances cannot be made with reasonable confidence. Let me state up front, however, that the FDA is not solely responsible for this situation. The task that they have been given is nearly impossible. The Congress bears responsibility as well for persisting in such a futile mandate. We all need to put our heads together and design a program that actually works.

Since 1970 per capita consumption of fruits and vegetables is up 24 percent. To meet this growing year-round demand, fruit imports are up from 25 percent of total fruit consumption in 1970 to 38 percent in 1991. Vegetable imports have increased from 6 to 9 percent of total domestic vegetable consumption during that time. Meanwhile, hundreds of pesticides are used overseas that have either been canceled in the United States for health and environmental reasons or that have never been registered in the United States at all, usually because of our relatively tough safety standards.

A 1990 GAO investigation found 110 pesticides that fell into these two categories used in just five Latin American nations that are major sources of fruits and vegetables consumed in the United States.

The FDA simply cannot police with reasonable certainty the hundreds of pesticides scattered throughout the global food supply. Our analysis of FDA's routine import monitoring program found that for most crops from most countries FDA inspectors have little or no idea what pesticides were applied to specific shipments of food entering the United States.

Meanwhile, to compensate, the FDA relies on multiresidue detection methods designed to find hundreds of pesticides in a single

<sup>3</sup> Additional material supplied by Mr. Vroom: the January and July 1993 *GIFAP News*, December 1991 and March 1992 *GIFAP "Safe Use News"*, and a 3-panel "Safe Use Project" brochure; four photographs taken in Guatemala in April 1993 of classes on safe pesticide handling; a copy of an article from *Agri Marketing* on how FMC successfully used symbols and pictures, instead of words, for pesticide use instructions; and letters to the editor rebutting the October 1993 *St. Louis Post Dispatch* article, may be found in the subcommittee file.



sample. Unfortunately, the multiresidue methods that FDA uses can detect only about one-half of the nearly 630 pesticides in international commerce. For the other half, the remaining 300, individual residue tests specific to each pesticide are required to find the chemical in food.

The FDA, however, used such single-residue tests on only 10 percent of the samples of 22 imported fruits and vegetables analyzed during the years 1990 to 1992. On average during this 3-year period the FDA used one single residue test per 31 million pounds of these imported fruits and vegetables.

For some crops testing was extraordinarily poor. FDA conducted no single-residue tests on over 1 billion pounds of potatoes entering the United States during this 3-year period. For oranges and grapes the FDA ran just one single residue test for every 50 million pounds of imports.

In many FDA regional labs the situation is even worse. Multiresidue scans in FDA's eastern labs are routinely running at about half their capacity. Single-residue methods are rarely used at all. Overall, these inefficiencies limit the pesticide detection capability in eastern labs to about one-quarter of all pesticides used worldwide.

Again, for some crops, testing was extremely thin. For 16 out of 22 crops we analyzed the FDA's eastern labs performed no single-residue test over the entire 3-year period.

Finally, testing some years is worse than others. In 1991 no single-residue test—and, again, these are required to find about half the pesticides used worldwide—were performed by eastern labs on over 7 billion pounds of 22 different fruits and vegetables, that entered the United States via eastern ports.

In spite of this bleak picture, I would like to emphasize again—

Mr. GEJDENSON. Excuse me. When you say it is required to do the single tests, do you mean by that that unless you do the single test you don't find out if the residue is there?

Mr. WILES. There are about 300 pesticides used worldwide out of 630, where if you don't do the single-residue test you have no chance of finding the pesticides.

Mr. GEJDENSON. So what you are saying is in an entire year there were no tests done that would have caught any of these 300 chemicals?

Mr. WILES. Right. On 22 fruits and vegetables, 7 billion pounds of which entered the Eastern United States. We are talking bananas, oranges, potatoes, very common fruits and vegetables.

But, again, I want to emphasize that FDA is not entirely to blame for this situation. The task of policing this landslide of imported food for hundreds of pesticides and their breakdown products, which we haven't even gotten into, is virtually impossible.

Fundamental reforms are needed to construct an effective system. There is not enough money in the world to make this system work. At the heart of any workable reform package is a shift of the burden of compliance. In essence, we are recommending a role reversal. The food industry must be responsible for pesticide residue testing. FDA must police the tests and focus its limited resources on trouble spots.

Specifically as a condition of entry for all food products, importers must provide certification from accredited labs that all residues are in compliance with U.S. standards.

In addition, all pesticides applied to the crop must be listed on each import shipment, even pesticides whose residues may be grade below levels normally detected by routine analysis. To ensure the credibility of such an arrangement, private labs should be rewarded for finding violations and FDA should audit these labs quarterly through mandatory analyses of blind samples, spiked with pesticides and sent to the FDA.

The appropriate analogy to this recommendation is the manner in which health and safety studies are conducted to register pesticides with the EPA. The EPA does not commission and pay for health and safety tests. Rather, the pesticide registrant incurs these costs to obtain the privilege of selling the pesticide. The EPA, in turn, audits both the results of the studies and the labs that conduct the animal tests.

The system is not perfect, but it is far preferable to the alternative, EPA generating all the tests, which would produce far less meaningful information I think we would all agree.

Similarly, the FDA and taxpayers should not be solely responsible for all pesticides residue monitoring enforcement, particularly on imported produce. Instead, the food sector of the economy, which accounts for a greater percentage of the Gross National Product than the health care industry, must be required to prove with reasonable certainty that imported and domestic food marketed into the United States meets U.S. food safety standards.

Thank you.

Mr. GEJDENSON. Thank you.

[The prepared statement of Mr. Wiles appears in the appendix.]

We have saved the best for last from our home state of Connecticut, Sandra Marquardt, Pesticide Information Coordinator, Greenpeace Action, and she is accompanied by Kristan Phillips. Sandra.

#### STATEMENT OF SANDRA MARQUARDT, PESTICIDE INFORMATION COORDINATOR, GREENPEACE ACTION

Ms. MARQUARDT. Thank you. It really is hard to be kept to the last. It gets pretty nerve-wracking.

I wanted to thank you and other members of the subcommittee for inviting me to continue our discussion from February of 1992 on pesticide exports or the Circle of Poison.

I would like to submit my testimony for the record as well as several articles that were published earlier this year in the *St. Louis Post Dispatch*—I know it is the hometown of Monsanto—written by Bill Lambrecht. I think they give a really good idea of the use situation of pesticides exported by the United States overseas.

When I first heard in August 1993, of the administration's plans to prohibit the export of banned pesticides I was really excited. I knew that former Senator Gore had been a sponsor since 1989 of strong circle legislation to do just that. I also knew that former Representative Espy, now USDA Secretary, had voted with circle sponsor Representative Synar in October 1990.

The vote would have instructed House conferees to support stronger Senate language in the Farm Bill Conference Committee. It sounds kind of convoluted, but basically what it says is we had some really strong support in the administration a couple years ago for strong language.

What the administration announced a month later and the version proposed today are in many ways both weaker than that of the Bush administration as well as that of the regulated industry. In fact, they are also weaker than the legislation which the House had already voted to support in 1990 as part of the farm bill.

In short, today's proposal is the pesticide industry's dream come true since it does next to nothing to stop the export of toxic pesticides. The only improvement, a support for a prohibition on the export of pesticides banned or almost banned for human and/or health reasons, has been watered down. DDT could still go out under this proposal.

Let's look at some of the key issues, some of the most controversial.

The administration proposes to permit the export of pesticides which have never been registered in the United States. EPA would not have to do even a cursory review of that information. This kind of review was required even in the House bill passed by the House in 1990. Since when did the United States start relying on the registration programs of other countries?

Historically, what is acceptable in another country may not be acceptable to us. DDT is still registered in other countries. There are several never-registered pesticides that we manufacture here that we have not allowed on the market for years, as long as 10, 14 years, that are registered in other countries. We have not registered them here for a reason.

An example of what kind of never-registered pesticides we are talking about is the herbicide acetochlor which I understand is up for registration in the United States any day now, made by Monsanto at its Muscatine, Iowa, plant. It is primarily exported to Europe, Ukraine and Argentina, but the United States has not registered it even though both Monsanto and ICI have been trying to get the product registered here since at least 1983.

I understand that at least 11 million pounds of this chemical was exported that we were able to track in 1993 alone. Could it be because acetochlor causes not just one but six different forms of cancer, including liver, kidney, lungs, nasal, thyroid, uterus, and EPA considers it a probable human carcinogen?

I note that we have ignored thus far the beginning part of the Circle of Poison which is our workers. We have to be able to protect these workers from the very chemical that they are producing. The product stewardship program that EPA and USDA FDA have proposed, while well-intentioned, is fully misguided and unless rescued could be a complete waste of money.

Let me give at least two examples of why I feel this way. In July 1992, seven workers in Nicaragua were sent to the emergency room with uncontrollable vomiting, dizziness and other symptoms after mixing with their arms and sticks the highly toxic never-registered insecticide carbosulfan. This is a bad copy of a photo I took of two of the workers after they got released from the hospital.



According to the U.S. manufacturer, FMC, based in Institute, West Virginia—their headquarters are in Philadelphia, Pennsylvania—the farm manager had attended a company-sponsored course on the safe use of carbosulfan. He knew how to apply that product safely. He was in charge of giving that information to his workers. The workers, nonetheless, were poisoned.

Secondly, I just got back from doing research on the use of U.S. pesticides in Costa Rica. Wherever I went, whomever I asked, everyone knew they should wear a mask or gloves or boots, but the fact is they don't. Protective clothing is too hot, too uncomfortable, too expensive. What is worn is worn in such ways as to be useless.

I have two photos here I would like to show you. This first photo is of a boy—he is about 17 years old—spraying paraquat. This is made in the United States as well as in England. He has a protective outfit on. He has a cotton sort of jumper on that is provided by Standard Fruit Corporation down there.

However, as you can see from this photo, he is soaked up to his knees. He also has boots on, so he actually has more protective clothing than I saw at all down there, and that is probably to Standard Fruit's credit. His legs are soaking. His back is soaking. He was pouring the paraquat into the container in such a manner that it would actually overflow down the back of the backpack, and then he would hitch it onto his back. The apron—the protective apron is protecting the back of his legs.

This is ridiculous. This is a U.S. corporation acting down there. This is a U.S. pesticide.

I have a second photo now. This is a packing plant owned by Standard Fruit again, although it was the exact same situation for Del Monte. This woman is applying—this is sort of the last stop before a banana is packaged for export to the United States, Belgium, wherever. This woman is applying a fungicide in case there is any kind of fungal outgrowth during the shipment process, shipment period.

According to Merck in Rahway, New Jersey, she is supposed to be wearing a mask to protect her against the mists as well as impermeable gloves. As you can see, she is wearing neither of them, and she has so much fungicide on her arms that it is literally dripping off her elbows.

I also note in the information from the manufacturer that this product is extremely toxic to fish. All the residues from the fungicide go immediately onto the floor and into a drain that goes out into the water into the Atlantic. That was a digression, sorry.

Instead of wasting this money—these are U.S. corporations. They know how to apply the pesticides. They know how their workers should apply it. But they are just not going to do it. We are not going to be able to enforce safe use. Instead, all of the \$4 million that EPA is proposing should be dedicated to research and extension of alternatives to pesticides. We should be teaching people how to get off the pesticide treadmill through organic or integrated test management methods.

Indonesia's IPM in rice program has been so successful that both pesticide use and poisons have been reduced a whopping 60 to 80 percent, if not more.

We should not be funding obsolete technologies.



The sieve called border inspection is another good reason for stopping the Circle of Poison before it starts.

FDA is not able to test for at least 50 percent of the never-registered pesticides exported from the United States in 1992. While it managed to stop the distribution of shipments of food that came in in 1993 with illegal pesticides such as chlordane, heptachlor and prothiophos on them, we must wonder what was on the 99 percent of imported foods which go unchecked. USDA doesn't even bother testing for pesticides not registered for use in this country.

Mr. GEJDENSON, whether it is the poisoning of Nicaraguan peanut workers, the chlordane and heptachlor on our imported foods or the destruction of a man's promising musical career from chlordane and heptachlor poisoning, putting trust in the pesticide industry to control use of their pesticides is like putting the proverbial fox in charge of the hen house.

Ms. MARQUARDT. It doesn't make sense. I urge the administration to make their former vision a current reality. Thank you.

[The prepared statement of Ms. Marquardt appears in the appendix.]

Mr. GEJDENSON. Thank you. I would hope that you would all submit to the committee proposals, as this would strengthen the administration's proposal that has come before us. And this committee, hopefully will act expeditiously to move this legislation to the floor.

Mr. PHILLIPS, the incident that occurred where you were fogged with this chemical, did they give any warning for people to leave the building?

Mr. PHILLIPS. None, there was no warning.

Mr. GEJDENSON. And were there other people in the room at the same time?

Mr. PHILLIPS. There were other people.

Mr. GEJDENSON. And were they affected as severely as you?

Mr. PHILLIPS. I know of other people that were affected with anorexia and pulmonary embolism and other problems. I know people that have had miscarriages, stillbirths.

Mr. GEJDENSON. So this was a room with lots of people in it?

Mr. PHILLIPS. There were lots of people in the room. There were lots of people in the building, yes.

Mr. GEJDENSON. And this product is prohibited from sale in the United States at this point?

Mr. PHILLIPS. That is my understanding, that it is prohibited for sale in the United States. I wish to give you a copy of a videotape, workmen this week discussing these issues, which was on Asian TV.

Mr. GEJDENSON. Thank you. Well, it seems to me that there is an opportunity here not just to provide better safety for American consumers and workers abroad, but to also strengthen America's position in the marketplace as a provider of high quality and environmentally safe technologies. The present course, frankly, aside from its health risks to American consumers and workers abroad, seems to me to doom our position in the marketplace over the long haul. That is not the way for responsible corporations and countries to act. It is also not good economics over the long haul.

I thank this panel for its testimony and our previous panels, the work that the Secretary has done, and we commit to you that we will continue on this effort as rapidly as possible. Thank you very much.

[Whereupon, at 11:04 a.m., the subcommittee was adjourned.]

## APPENDIX

Opening Statement of Rep. Sam Geidenson  
Chairman, Subcommittee on Economic Policy, Trade and Environment  
U.S. Pesticide Exports and the Circle of Poison  
January 26, 1994

In 1991, patrons at Atlanta's elegant Ritz-Carlton Hotel received a less than elegant surprise when they ordered asparagus. The Argentinean asparagus on their plates was tainted with a cancer-causing pesticide which was made in America and legally exported to the Latin American country.

Even more disturbing, the U.S. Food and Drug Administration knew that the asparagus served at the Ritz had been poisoned, yet failed to stop its distribution. A Circle of Poison was created -- starting at a Memphis pesticide factory and ending in a hotel restaurant a few hundred miles from the factory gates.

Two years have passed since the subcommittee uncovered this concrete evidence of the Circle of Poison. Yet the pesticide which poisoned the Argentinean asparagus is still exported from our shores, along with at least 26 other banned and unregistered American pesticides.

Despite this evidence, the FDA still tests only two percent of imported food for pesticide residues, and 98% is shipped directly from the wharf to the supermarket shelf. Furthermore, one of today's witnesses will present compelling evidence that the FDA labs in my native Northeast perform much less thorough tests on imported food than FDA labs in other parts of the country.

Because the powerful pesticide lobby has stymied congressional action, American consumers eating imported food are still at risk. The laborers in the developing world who use these dangerous pesticides are still at risk. And the livelihoods of American farmers who must compete against produce grown with these pesticides are still at risk.

In past years, I joined with Rep. Mike Synar and Sen. Pat Leahy in an effort to legislatively break the Circle of Poison. Our efforts have been unsuccessful. Many of us were disappointed to see that the Clinton Administration's proposed pesticide export policy, released in September, failed to place significant limits on U.S. pesticide exports.

Fortunately, due to the energetic leadership of EPA Administrator Carol Browner, the Administration will announce a refined and improved pesticide export policy today. While I will defer to the Administrator to discuss the details of the new policy, I believe that it represents a major step forward in the Circle of Poison debate. Though it is my intention to work with the Administration to strengthen the pesticide export policy even further, particularly as it relates to never-registered pesticides, the revised Clinton proposal will clearly serve as the base for congressional action.

Statement of  
 Carol M. Browner  
 Administrator .  
 U.S. Environmental Protection Agency  
 and  
 James R. Lyons  
 Assistant Secretary  
 U.S. Department of Agriculture  
 and  
 Michael Taylor  
 Deputy Commissioner  
 U.S. Food and Drug Administration  
 Before the  
 Subcommittee on Economic Policy  
 Trade and the Environment  
 Committee on Foreign Affairs  
 U.S. House of Representatives

January 26, 1994

Good morning Mr. Chairman and members of the Subcommittee. We appreciate the opportunity to testify before you this morning on EPA's legislative proposals to address food safety issues related to the export of U.S. manufactured pesticides. On behalf of the Clinton Administration, we are pleased to take this opportunity to chart a new direction on how to enhance the safety of imported foods, which will simultaneously protect people and the environment.

#### Introduction

As we have previously stated before Congress, the safety of the American food supply is of paramount importance to the Administration. This past year, EPA, the Food and Drug Administration (FDA), and the U.S. Department of Agriculture (USDA) committed to develop a strong food safety strategy and to reduce the use of hazardous pesticides in the United States. We wish now to extend this new approach to deal with pesticide safety abroad.



The world's trade in pesticides is an active industry. It is estimated that over 4 billion pounds of pesticides (measured as active ingredients) are produced and used in the world annually, of which about three-fourths are used for agricultural purposes. We, along with other industrialized countries such as Japan, Germany and the United Kingdom, are major exporters of pesticides to both industrialized and developing countries. Let's look at the numbers, based upon volume of active ingredient produced. The world production of pesticides is approximately 4 billion pounds of active ingredients. The U.S. net supply represents approximately 1 billion pounds; therefore, outside of the U.S., the world's net supply is 3 billion pounds of active ingredient. Approximately .4 billion pounds is exported from the U.S., thus representing roughly 15% of the world supply, excluding the U.S. Our pesticide exports represent about one third of the total U.S. production.

Pesticides are used as a means to increase food supplies and to stimulate economic growth in many developing countries. In these countries, the human exposure and environmental risks caused by pesticides may be magnified by the manner in which pesticides are marketed, handled, and applied. We are informed that adequate protective equipment is rarely used or, sometimes, it is grossly inappropriate for tropical climates. Labels may not contain complete information and may not always be translated into native languages; workers who handle pesticides may not even read or understand the label contents.

Under our food safety requirements, all food -- domestic or imported -- must meet the same standards. Foods found to contain residues of a pesticide for which no allowable residue limit (tolerance) has been established, or foods containing residues of a pesticide that exceed the allowable residue limit are considered to be adulterated. Such foods are prohibited from entering the domestic channels of trade and distribution.

We share with Congress, the general public, and other countries a concern about the international trade in pesticides, particularly as it may affect food consumption in the U.S. A number of years ago, there was increased concern about whether pesticides manufactured in the United States, but prohibited for use in this country, could find their way back as illegal residues on imported foods. This threat stirred public sentiment. But, recently the debate has expanded to encompass the concern over the impact of exported pesticides on public health and environmental quality abroad. In this regard, the Administration will begin a process for coordinating with other countries in a multi-lateral approach to protect the global environment from dangerous pesticides.

This Administration is in full support of the goals of: ensuring the safety of the U.S. food supply, reducing the potential adverse effects resulting from the use of U.S. manufactured pesticides in other countries, and promoting fair and responsible pesticide trade practices around the world. We

have been guided by those goals in crafting our own legislative proposals.

#### Current Requirements on Pesticide Exports

Although we are calling for legislation that establishes tighter export controls and expanded EPA authority, we are quite proud of the programs we are carrying out under current statutes. Because of the significant potential adverse effects of pesticides on the environment and our citizens, we intend to maintain our efforts in this area.

Notification Programs. EPA issued in February 1993 a final rule expanding the requirements for labeling, recordkeeping, and notification of U.S. pesticide exports. Under the new rule, a foreign purchaser of an unregistered pesticide must sign a statement, prior to export, acknowledging that the product is unregistered and cannot be used or sold in the United States. The exporter must send this statement to EPA, who in turn provide it to the government of the countries to which the export is destined. The new rule approximately doubles the number of products subject to this procedure, and extends the notification beyond the first destination of the export to all countries that are known to be a final destination.

Also, the final rule includes a significantly greater number of regulatory actions subject to the world-wide notification and announcements of important pesticide regulatory decisions. We have expanded our program to inform foreign governments about our

decisions and the rationale for reaching decisions to reduce risks posed by pesticides and pesticide-treated foods.

Prior Informed Consent. Since 1989, the United Nations Food and Agriculture Organization (FAO) and the United Nations Environment Programme (UNEP) have operated procedures to implement the PIC program for trade in pesticides and industrial chemicals. This program concentrates on those pesticides and chemicals which have been banned or severely restricted for use based on adverse human health or environmental effects. In addition, PIC procedures will cover pesticides formulated with active ingredients found to pose risks under conditions of use in developing countries.

The U.S., along with other major pesticide exporting countries, is extremely supportive of the PIC system. The system's fundamental premise is that importing countries should be able to make informed decisions on which pesticides they choose to receive, in advance of actual shipments. In the event of a refusal by an importing country, an exporting country's government notifies the exporter and takes the necessary steps under its own laws to prohibit the export of unwanted pesticides.

Harmonization We are particularly proud of the advancements we have made in the past year to further international harmonization of regulatory requirements. Simply put, we have two primary reasons for pursuing harmonization: economics and the environment. First, it makes good economic sense to eliminate unintended trade barriers and reduce the unnecessary



duplication of effort by regulatory organizations around the world. Second, we are convinced that our efforts will improve environmental protection domestically, and on the global level.

We are operating on a number of fronts. Under the implementation of the pesticides portion of the Canadian-U.S. Trade Agreement, we have reached agreement on a number of programs which will make our systems more compatible, reduce trade frictions, and allow us access to each other's vast scientific resources. During the negotiations of the North American Free Trade Agreement, we established a separate process to discuss pesticide harmonization, regulatory issues and technical assistance. Under the newly established Pesticide Forum of the Organization of Economic Cooperation and Development, we are excited at the very real prospects of harmonizing data requirements and review procedures among the industrialized countries.

We also continue to work within the Codex Alimentarius Commission to improve the quality of the international food safety standards established by that organization. With these improvements underway, we believe that Codex will serve as a true international standard for pesticides residues in foods in international trade. While pursuing harmonization so aggressively, we are also ensuring that internationally agreed upon standards are at once protective, reasonable and based on sound science.

As you are aware, on a domestic level EPA, USDA, and FDA activities are open to public scrutiny and participation. We have been quite successful in carrying this operating principle to the international level. Because of our efforts, industry and public sector groups have been represented at the OECD, CUSTA, Codex and have been a part of many U.S. delegations to international meetings.

Obviously, this brief description of our harmonization work is but a snapshot. Let us say in sum, we see harmonization as an investment in the future. These activities do require us to spend resources that are in scarce supply these days. But we believe that if we invest in harmonization now, we will see payoffs. Harmonization can improve food safety through reduced residue violations and protective standards that are adhered to in all countries. It can reduce costly trade disputes. It can reduce the workload of national regulatory programs through increased exchange of reviews. And it can improve the scientific rigor through debate and the exchange of information. It is a worthwhile investment.

#### A New Direction in the Administration's Legislative Proposals

In September 1993, as you know, we initially proposed the enactment of several legislative amendments addressing pesticide export control. The thrust of these proposals was to ban the export of a narrow class of pesticides and to impose additional requirements on certain other pesticide exports.

Since then we have reexamined our position and determined that additional legislative changes are required to address the concerns associated with the "circle of poison" issue. In defining our position, we searched for a more effective combination of regulatory measures and new domestic and multi-lateral approaches which would: (1) effectively minimize the potential risks associated with the export of U.S. manufactured pesticides, (2) achieve protection of public health and environmental goals both here and abroad, and (3) provide a stimulus for all involved parties to share responsibility for food safety and safe pesticide use.

The Administration's revised approach has four principal elements. First, we would prohibit the export of pesticides canceled for health reasons in our own country. Second, we would prohibit the export from our country of pesticides that have not been approved in the United States, unless such pesticides were approved by other countries with credible and independent regulatory systems, and there was an analytical method to detect residues of the pesticide on imported food. Third, we would make technical assistance to developing countries a prominent feature of our initiative, by mandating corporate stewardship programs, and subject to the availability of resources, authorizing direct government-to-government technical aid programs. Finally, in addition to our legislative strategy, we will work with other countries in a multi-lateral approach to protect public health



and the environment from pesticides which pose an unacceptable risk.

Prohibition on Export of Banned Pesticides We propose to prohibit the export to a foreign country of any pesticide product which contains an active ingredient that has been banned for all or virtually all uses in the United States, based on adverse human health concerns. In deciding whether a pesticide has been banned for "virtually all uses," EPA would apply the criteria developed by the United Nations' "Prior Informed Consent" (PIC) system, which the United States has agreed to support under the United Nations Food and Agriculture Organization's International Code of Conduct on the Distribution and Use of Pesticides.

Restriction on Export of Pesticides Banned in the United States Based on Adverse Environmental Effects. Because pesticides may harm not only public health but also wildlife and ecosystems, the Administration is proposing that the export of a pesticide banned for environmental but not health reasons could occur only after an express statement by the importing country that it wished to receive the product. In the event of silence or refusals, we would take the necessary steps to prohibit the export of these environmentally hazardous products. This approach is based on our view that due to the great differences in ecosystems around the world, importing countries should be able to make informed decisions on which pesticides they wish to receive under their own laws.

We also propose to prohibit the export of any pesticide product to any foreign country that does not want to import the pesticide. However, to assure U.S. producers of the pesticide are not placed at an unfair disadvantage, such importing country must certify that it is neither producing, nor importing, the pesticide product for use in the country, and it will not do so in the future. A demonstration that an importing country is not in compliance with this certification would provide sufficient grounds for lifting the prohibition.

Stringent Restrictions of Exports of Unregistered Pesticides

Unregistered pesticides could be exported only under circumstances in which potential risks to public health and the environment have been adequately assessed. First, such products would be allowed to be exported only if the pesticide is approved for use or residues of the pesticide on food are permitted in at least three countries with credible pesticide regulatory programs. At a minimum, such program must require pre-market approval and decisions to be based on the assessment of scientific data to evaluate risks to public health and the environment by competent, independent reviewers. The program should meet the criteria established at an international level, under the FAO Code of Conduct and in the context of the OECD Pesticide Forum.

Additionally, we would allow the export of these unevaluated pesticides only if EPA determines either that there is a practical method for detecting residues of the pesticide in foods

and EPA has an appropriately certified pesticide reference standard, or that the pesticide is not likely to be used in a manner resulting in pesticide residues in imported foods. The same requirement would apply to the export of a pesticide registered solely for non-food uses. This provision strengthens our ability to ensure that unregistered and potentially dangerous pesticides can be detected on imported food, which comprises a significant share of our diet.

At the same time, we are sensitive to the need not to interfere with scientific research and development. Therefore, we propose to exempt from most of these restrictions, the export of small quantities of a pesticide product to be used solely for purposes of research and development, but not including test marketing purposes. For small quantities of pesticide products in this category, we propose to require compliance with the labeling requirements and foreign user certification and notification requirements in our existing laws.

Corporate Stewardship and Technical Assistance Despite much emphasis to improve the export of U.S. manufactured pesticides, we are not so naive to believe that actions taken by the United States alone will necessarily enhance food safety, or solve problems with pesticide misuse in importing countries. We recognize that we are only one participant in the world pesticide trade and not necessarily the sole source of potential illegal residues on imported food. Indeed, a recent report by the General Accounting Office on unregistered pesticide violations on

imported food points out that many of the unregistered pesticides found as residues on imported foods are manufactured in other countries. Therefore, it is increasingly difficult to determine the origins of these residues.

Accordingly, we also propose new requirements intended to promote pesticide product stewardship in foreign countries by U.S. producers and exporters. We will mandate that U.S. pesticide exporters follow the FAO International Code of Conduct on the Distribution and Use of Pesticides developed by the Food and Agriculture Organization of the United Nations. This code has been endorsed by the United States and over one hundred other countries.

The Code describes the shared responsibilities of various parties -- governments, industry, trade, and international organizations -- involved in the development, distribution, and use of pesticides. In particular, it is of great value to developing countries which do not have effective control procedures. As stated under the Code, we will require pesticide manufacturers and exporters to keep an active interest in following their products to the ultimate consumer. They will also be required to keep track of major uses and the occurrence of problems arising in the actual use of their products as a basis for determining the need for changes in labelling, use directions, packaging, formulation, or product availability. Additionally, we are still exploring effective ways to make compliance with the Code enforceable.



As a key element in our proposal, we will develop and implement a comprehensive program of technical assistance designed to enhance appropriate pesticide regulation, safe handling and use practices, and research on alternatives to chemicals. Based on our experience, we believe that a direct correlation exists between a strong pesticide regulatory infrastructure and higher compliance rates on imported food. We will seek Congressional authorization to spend up to \$4,000,000 a year (roughly equal to one cent per pound of exported pesticides) to provide technical assistance to developing countries. We will work with Congress to identify appropriate sources of funding. On a priority basis, we would begin assistance efforts in developing countries that are major sources of food imported into the United States.

We will design our assistance efforts based on our experience in Latin America, Asia, and Africa. In particular, since 1992, we have been successfully implementing a pilot program of technical assistance in pest and pesticide management in Central America with support from FDA, USDA, and the Agency for International Development (AID). Unlike anything that we have done before, this project is already providing us with greater assurance that Central American fruits and vegetables destined for the United States will be free of violative pesticide residues. The major areas of technical support would be: strengthening pesticide regulatory institutions, provision of technical information, support for pesticide management and

safety training programs, and coordination with assistance efforts conducted by other donor or international organizations.

Our proposal will include new provisions intended to expand the reporting obligations of pesticide producers and exporters. These provisions would provide us with the quantity and distribution patterns of U.S. manufactured pesticides sent abroad. The statute would also require EPA to make more of this pesticide export information available to the public, and would include provisions necessary to protect confidential business information. This may also include a periodic report to Congress, which would be available to the public.

#### CONCLUSION

The proposals set forth today call for tighter export controls and expanded EPA authority to address human health and environmental safety issues concerning our pesticide exports. In developing them, we have been guided by our mission to protect public health and the environment.

This Administration is committed to becoming an international leader in environmental protection. In an era of global economies and global environmental hazards, we must lead by example. We have a moral obligation to provide leadership. To our knowledge, no other country has proposed or assumed an equivalent level of responsibility for pesticide product stewardship as we have today.

Environmental protection should be afforded to all of us, benefitting all of us. At its core, environmental equity means

fairness in the application of regulations designed to protect the health of all humans and ecological systems on which human activity depends. The Administration will work with other countries to address the use of pesticides which pose an unacceptable risk.

We possess a wealth of technical information on pesticide products which has the potential to influence behavior abroad in a positive way. As an exporting country, we are in no position to judge the suitability, efficacy, safety or fate of a pesticide in other countries. Such judgments are the responsibility of importing countries. However, in many cases our technical assistance and expertise would provide them guidance for making informed decisions.

We are excited about our legislative proposals and the prospect of working cooperatively in technical assistance efforts to institute change. Change is at the core of our more aggressive and responsible agenda to achieve meaningful progress in improving public health and environmental protection worldwide.

Again, thank you for the opportunity to testify before you this morning and the opportunity to work together to reach our common objectives addressing concerns and issues related to the international trade in pesticides. We would be happy to answer any questions you may have.

## TESTIMONY OF KRISTAN PHILLIPS

## BEFORE THE

SUBCOMMITTEE ON ECONOMIC POLICY, TRADE AND ENVIRONMENT OF THE  
HOUSE FOREIGN AFFAIRS COMMITTEE

JANUARY 26, 1994

Good morning. My name is Kristan Phillips. I played the tympani drums on that brief piece.

I am physical testimony that U.S. Citizens overseas, as well as foreign nationals, are affected by the Circle of Poison. I am here today to ask that you stop the manufacture and export of pesticides that are banned for domestic use.

The Circle begins with the EPA practice of allowing export of pesticides so dangerous that they are banned for use here.

I am DYING PROOF that these banned pesticides return to the United States inside Americans, thus completing the Circle of Poison.

Six years ago I was an accomplished symphonic timpanist with the Hong Kong Philharmonic Orchestra. I had graduated from the Julliard School of Music and undergone more than 39,000 hours of practice to become a professional. I had performed in many orchestras and international festivals, playing some 2000 concerts, in 16 countries, under more than 90 conductors such as Maxim Shostakovitch and Andre Previn.



By June, 1987 I had 13 years experience as a Solo Principal Timpanist. In recognition for my research, pending patents, and upcoming publications, I was appointed as timpani lecturer for The Percussive Arts Society International Convention. In short, I was a world class timpanist.

My career was abruptly terminated on June 21, 1987 when I was gassed with pesticides at the Hong Kong Academy of Performing Arts during a rehearsal.

Exposure to a mixture of chemicals that included chlordane and heptachlor, left me with burning eyes and difficulty breathing. I became dizzy and disoriented. My body was trembling uncontrollably and I was literally foaming at the mouth. My legs buckled as I struggled to escape the building.

It was like being in a gas chamber, my own agonizing holocaust.

No one would disclose the chemicals used, antidotes, detoxification procedure, and label information when I required emergency hospitalization and antidotes.

Today I am left with the strength, endurance and coordination of a six year old child. My auditory memory skills are those of a 9 year old. I have double vision, balance loss, constant and intense ringing in my ears, severe liver damage, digestive upset, essential amino acid dysfunction, and damage to body detoxifications systems.

My doctors tell me I should not father children due to the high risk of birth defects.

Doctors have told me that as a result of my overseas exposure to the pesticides, including chlordane and heptachlor made by the Tennessee company Velsicol Chemical Corporation, my body has been made so toxic that if I were a building, I would be condemned and subject to immediate demolition. I can only look forward to chemically induced AIDS, malnutrition, cancer, and premature death.

I have been told that because some of these pesticides are stored in fat tissue, minimal exercise causes the pesticides to be released into my blood, forcing me to experience yet again the trauma of acute pesticide poisoning.

My neurological damage is permanent. I can only function a few hours a day.

Gone forever is my ability to musically move my hands over 1,200 times per minute with accuracy and grace.

I have been declared both physically and mentally incompetent by a Wyoming court due to pesticide induced brain damage.

My Hong Kong employment visa was not renewed. I was forced to return to the United States where all my attempts to get the necessary medical treatment have been stonewalled. I did not have,

and still do not have, the money required for detoxification treatment to stop my continuing decline.

Millions of people in their native homelands, to where Velsicol and other companies export their pesticides, do not have the knowledge, the money, nor the legal system to hold American corporations accountable.

Please ban the export of these chemicals. Never again should there be the pain, suffering and premature death of a common man, condoned by the U.S. government, at the hands of U.S. chemical manufacturers, who rely on ignorance, inadequate legislation, loose enforcement, and lack of respect for human rights in foreign countries for their profit.

Millions of Americans travel abroad annually. It happened to me. It could happen to you. Please use my experience as a lesson. If it's too dangerous to use in the U.S., it's too dangerous to use overseas. Ban the manufacture and export of these pesticides now.

Thank you.

TESTIMONY OF  
JAY J. VROOM, PRESIDENT  
NATIONAL AGRICULTURAL CHEMICALS ASSOCIATION

BEFORE THE  
SUBCOMMITTEE ON ECONOMIC POLICY, TRADE AND ENVIRONMENT  
OF THE  
COMMITTEE ON FOREIGN AFFAIRS

UNITED STATES HOUSE OF REPRESENTATIVES

JANUARY 26, 1994

Mr. Chairman and members of the Subcommittee:

Thank you for the opportunity to testify today on U.S. pesticide exports.

As you know, NACA testified before this Subcommittee two years ago on this subject and we are pleased to report today on all the activities that have occurred since then. At that time we said that proposed unilateral restrictions on U.S. pesticide exports would not answer concerns about U.S. and foreign pesticide use, or about possible pesticide residues on food imported to the United States. We suggested instead that we should join with other countries and organizations in cooperative efforts to avoid unfair injury to U.S. international trade and to assure an abundant, economical and safe food supply for all.

NACA has followed this suggestion and would like to report in our testimony today about our successes and plans for the future.

1. Outreach to Greenpeace

In the 1992 hearing, Mr. Chairman, you asked us to meet with Greenpeace and other special interests to explore common ground on U.S. pesticide exports. We have done so. Among several initiatives, we arranged for a meeting last spring with Greenpeace representatives and the Director of the international pesticide industry association, Mr. Claude Pretot, to discuss and share the materials used in the pesticide industry's innovative training program in Guatemala and other developing countries. We also invited Greenpeace to the international portion of our industry's semiannual regulatory program last spring.



A program we would like especially to talk to Greenpeace and others about is the interesting experience of a NACA member company in providing pesticide use instructions on products sold in developing countries through pictures rather than words. This experience was described in this month's issue of Agri Marketing magazine.

We plan to continue these outreach efforts and hope that Greenpeace and others will reciprocate with invitations on their part.

## 2. Improvements in EPA Regulation

Your Subcommittee asked at the last hearing about the effectiveness of U.S. regulation of pesticide exports. Since then, in February 1993, EPA issued extensive and substantive policy changes to its regulations on pesticide exports under Section 17 of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the federal law regulating pesticides. These changes expand labeling requirements for all exported pesticide products, clarify and improve procedures for exporting unregistered pesticides, and expand notification to other governments whenever EPA takes significant regulatory actions. The strengthened export policy is now in effect.

## 3. FAO/UNEP PIC Code

Your Subcommittee also asked how foreign governments can learn about and regulate the import of certain pesticides.

On January 1, 1992, the Food and Agricultural Organization (FAO) and United Nations Environment Programme (UNEP) jointly implemented the international program on Prior Informed Consent (PIC). This program allows all participating nations to receive information about exports of pesticides and industrial chemicals that have been banned or severely restricted for human health or environmental reasons, and gives them an effective opportunity to bar the export of such pesticides to their countries. Currently there are 115 countries participating, including the United States.

In support of the PIC program, the NACA Board of Directors last fall passed a resolution reaffirming the U.S. industry's support of PIC and encouraging its members to establish internal mechanisms to ensure compliance with decisions taken by importing countries. NACA will publish this spring an industry guidance manual to further assist the U.S. industry in complying with PIC.

## 4. NAFTA and GATT

As you are aware, the newly adopted North American Free Trade Agreement (NAFTA), and General Agreement on Tariffs and Trade

(GATT) address sanitary and phytosanitary measures affecting food imports. Both NAFTA and GATT ensure that domestic food safety standards are met by imported goods and that those standards are not actually disguised trade barriers. These international agreements will substantially strengthen measures to improve the safety of imported food to the United States.

We note, additionally, that NAFTA and GATT stress the importance of ongoing activities aimed at developing harmonized international food safety standards under the auspices of the Codex Alimentarius Commission. The Codex sets standards that can be adopted internationally, based on sound scientific justification, in order to simplify food safety regulation and facilitate compliance. NACA is actively supporting this international effort.

#### 5. International Manufacturing Code

At the last hearing, you also expressed concern about the impact of pesticide production on the health of foreign workers and protection of the environment. Recognizing that the production of pesticides under less demanding conditions in some developing countries may present environmental and health risks, NACA, the European Crop Protection Association, and the pesticide industry's international organization (GIFAP) have initiated a program to incorporate into existing international codes the same high standards of environmental and product quality throughout the world as is required today in developed countries.

We have informally discussed our plan with representatives of the international organizations responsible. The reaction has been positive. The two programs involved ---the International Standards Organization Technical Committee 207 (ISO TC 207), and the United Nations Environment Programme (UNEP) Code of Ethics for Chemicals in International Trade--- address product quality, worker safety, and environmental protection. The pesticide industry plans to contribute extensively to ongoing work in refining these international standards and codes. TC 207 standards may be issued by late 1994; the UNEP code in 1995.

Based on a comment at the last hearing, on the application of U.S. laws to U.S. pesticide production for export, I should also mention that EPA, and state and local regulatory agencies extensively regulate domestic pesticide production, including the manufacture and formulation of unregistered pesticides for export. Applicable laws include the: Clean Air Act, Resource Conservation and Recovery Act, Superfund (including SARA Title III), Clean Water Act, Toxic Substances Control Act, Occupational Safety and Health Act, and Hazardous Materials Transportation Act. Our goal is to encourage international efforts to adopt the substance of these laws in all countries.

## 6. GAO Report on Food Import Violations

The main topic in both the 1992 hearing and this hearing was a concern about pesticide residues in imported food. We pointed out in our previous testimony that FDA and other federal and state agencies have found few violations, and have correctly concluded that our food supply is safe.

This position was reaffirmed in a recent General Accounting Office report. Limited Testing Finds Few Exported Unregistered Pesticide Violations on Imported Food (GAO/RCED-94-1, October 6, 1993). The report stated that FDA and USDA monitoring "showed few violations of residue tolerances involving unregistered exported pesticides on foods imported into the United States." The report went on to recommend improvements in food monitoring programs, including a requirement that pesticide manufacturers provide reference standards and test methods for exported unregistered pesticides.

NACA supports GAO's recommendations. In fact, following up on the initiative mentioned in our testimony at the last hearing, NACA is currently up-dating the information provided earlier to FDA on unregistered pesticide exports. Preliminary information indicates that 4 compounds will be removed from the list, having received U.S. registrations or import tolerances, and 2 compounds are very close to being registered on food crops. The information to be provided includes the identity of unregistered pesticides, where the pesticides are registered and on what crops, an analytical method suitable for detecting pesticide residues on the crops, and an analytical standard.

We stand ready to work with this Subcommittee and others on voluntary measures and further changes to the law to improve the monitoring of imported food and to prevent foods with illegal residues from reaching U.S. grocery shelves.

## 7. GAO Report on Foreign Pesticide Regulation

Since your last hearing on U.S. pesticide exports, GAO has reviewed the steps taken by other countries to regulate pesticide use and the potential for pesticide residues in foods exported to the United States. Again, the conclusions are encouraging. In one study, GAO found a high degree of uniformity among OECD nations, including the U.S., with regard to the kinds of test data that are required to register food-use pesticides. A Comparative Study of Industrialized Nations' Regulatory Systems (GAO/PEMD-93-17, July 30, 1993). The GAO report stated, among other conclusions, that "the OECD initiative to update its guidelines holds out the promise that consensus can be developed on core registration requirements

potentially acceptable to a broad range of industrialized nations."

The GAO's positive view of international cooperation on pesticide regulation was echoed in another GAO study on Mexican regulation. Comparison of U.S. and Mexican Pesticide Standards and Enforcement (GAO/RCED-92-140, June 17, 1992). While saying that further improvements are needed, GAO stated that both industrialized and developing countries are working to resolve differences and to ensure the safety of U.S. food imports.

#### 8. Keystone Report on Food Safety and Pesticides

Also since your last hearing, the Keystone Center (a non-profit policy research organization) concluded a national dialogue on food safety and pesticides, including issues involving the export of pesticides. The Dialogue Group was generally supportive of current regulatory efforts, but recommended a number of strategies for improvement.

The Keystone Dialogue Group concluded that renewed efforts should be taken to characterize dietary exposure to pesticide residues and to assist regulatory efforts, to encourage pesticide residue compliance for imported foods, to educate foreign growers and exporters in pesticide handling, and to pursue food quality assurance and certification measures. Importantly, the Group also concluded that the United States should continue its ongoing multilateral and bilateral efforts to urge adoption of international health-related standards.

We believe the Keystone report could provide a useful point of departure for further discussion on legislative changes and voluntary initiatives.

#### 9. NACA/GIFAP Safe Use Initiative

Finally, since your 1992 hearing, the U.S. and international pesticide industry have been fully engaged in an expanded commitment to fostering safer product use in less developed countries. The "Safe Use Project" is a training program designed to improve standards in formulating and manufacturing pesticides, including improved labeling, packaging and advertising. Victor J. Kimm, EPA Deputy Assistant Administrator, observed in 1993 on the initiative--

"Based on my first hand knowledge of the goals and progress of the GIFAP pilot project in Guatemala, I believe the safe use efforts you are undertaking hold significant promise for improving pest and pesticide management practices in developing countries."



The project is currently underway in Guatemala, Kenya and Thailand, and will serve as a pilot project for Latin America, Africa and Asia. We hope to launch safe use programs in additional countries by 1995.

In conclusion, the many regulatory improvements and other programs that we have described in our testimony----programs initiated and expanded since your last hearing----are important to the subject of your hearing today. They demonstrate that the food imported into the United States is safe, dependable and inexpensive, in large part because of U.S. pesticide exports and effective international regulation. While further improvements can be made, pesticides are carefully regulated by the governments of industrial and developing nations to protect workers, the environment, and U.S. and foreign food consumers. Finally, given major international initiatives to improve and harmonize pesticide regulation, current U.S. law regulating pesticide exports needs little, if any change.

Again, thank you for letting us testify before you and your Subcommittee on this important subject. We stand ready to respond to your questions.



Testimony Before the  
Subcommittee on Economic Policy, Trade and the Environment

House Committee on Foreign Affairs

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January 26, 1994

**Introduction**

Mr. Chairman, distinguished members of the Subcommittee. Thank you for the opportunity to testify today on pesticides in imported food.

I am Richard Wiles, director of agricultural pollution prevention at the Environmental Working Group, a nonprofit environmental research organization here in Washington, DC.

In the past year the scientific community has spoken with unusual clarity and authority on the health risks of pesticides, and the failure of the current regulatory system to protect the public health, particularly the health of infants and children. The Clinton Administration responded to these findings with an unusual consensus between the Environmental Protection Agency (EPA), the Department of Agriculture (USDA), and the Food and Drug Administration (FDA) calling for legislative reform designed to reduce public health risks from pesticides.

One question before this committee today is whether or not the increasing importation of fruits and vegetables will undermine these risk reduction goals. An equally important issue is whether or not the Food and Drug Administration can

### Emerging Scientific Consensus

Scientific agreement was reached in 1993 on three important issues:

1. The current pesticide regulatory system does not protect the public, particularly young children from exposure to pesticides through food, water, and the general environment.<sup>1</sup>
2. Pesticides are almost certainly causing adverse human health effects, even at the low doses encountered by the average citizen through food and water. Led by the National Institute of Environmental Health Sciences, a consensus is emerging linking pesticides and other chemicals in the environment to adverse human reproductive effects and ongoing increases in cancers of the human reproductive system. Testicular, prostate, ovarian, and breast cancer are all on the rise.<sup>2</sup>
3. People are exposed to multiple pesticides simultaneously and from various environmental sources. It is now agreed that exposure to pesticides in food, water, and through other routes such as home and garden pest control, is ubiquitous and generally understated by conventional regulatory analyses. This is particularly true for children and when one considers multiple exposure to pesticides which contribute to the same health problems.<sup>3</sup>

On June 28, 1993, the Environmental Working Group released the report *Pesticides in Children's Food*. Our report broke new analytical ground in exposure assessment, and included a new examination of FDA's pesticide monitoring program which forms the basis for the more thorough analysis of imported food residues presented to this subcommittee today. Before proceeding to that analysis, let me briefly review the report's major findings.

First, *Pesticides in Children's Food* documented for the first time the prevalence of multiple residues in single foods and showed that it is not uncommon for children to eat single pieces of fruits or vegetables with 5 or more pesticides on them. Second, we documented the severity and imbalance of pesticide exposure early in life, showing that up to 35 percent of lifetime exposure to some carcinogenic pesticides occurs by age 5. Third, we estimated the risk presented by this disproportionately

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<sup>1</sup> A five year study by the National Academy of Sciences, *Pesticides in the Diets of Infants and Children*, concluded that the current regulatory system puts economic benefits above public health protection, and that as a result, infants and young children are inadequately protected from pesticides.

<sup>2</sup> Statement from the Wingspread work session on "Chemically Induced Alterations in Sexual Development: The Wildlife/Human Connection," July 1991. Miller et. al., *Seer Cancer Statistics Review 1973 - 1990*, National Cancer Institute, NIH pub. No. 93-2789, 1993.

<sup>3</sup> This point was made by both the National Academy of Sciences report, *Pesticides in the Diets of Infants and Children*, and in the Environmental Working Group report, *Pesticides in Children's Food*.

assure the public that imported food meets U.S. pesticide safety standards. Our analysis of the FDA's own pesticide residue monitoring data indicates that these assurances cannot be made with reasonable confidence.

Consumption of fruits and vegetables has increased 24 percent in the past 20 years, with imported fruits and vegetables now accounting for about 25 percent of total consumption. Nonetheless,

- For most crops from most countries, FDA inspectors have little or no idea what pesticides were applied to the food entering the United States;
- Meanwhile, the multi-residue detection methods that FDA relies on can detect only one-half of 630 pesticides in international commerce;
- For the remaining 300 pesticides, individual residue tests are required to find the pesticide in food. The FDA, however, analyzed only 10 percent of 22 imported fruits and vegetables during 1990-1992 using single residue tests. On average during this three year period, the FDA used one single residue test per 31 million pounds of imported fruits and vegetables.
- In many FDA regional labs, particularly labs located east of the Mississippi River, the situation is even worse. In FDA's eastern labs multi-residue scans are routinely running at about one half of their capacity; single residue methods are rarely used at all. Overall, these inefficiencies limit the pesticide detection capability in eastern labs to about one quarter of all pesticides used worldwide. For one year, FY 1991, no single residue tests were performed by eastern labs on over 7 billion pounds of 22 different fruits and vegetables that entered the U.S. via eastern ports.

I would like to emphasize at the outset, however, that the FDA is not entirely to blame for this situation. The task of policing food imported into the United States is extraordinarily difficult. Fundamental reforms are needed to construct an effective system. At the heart of any workable reform package is a shift of the burden of compliance. In essence, parties importing food into this country must be able to prove, through verifiable means, that the pesticides applied and the residues left on the food meet all U.S. standards.



heavy early exposure to eight carcinogenic pesticides routinely found in just 20 fruits and vegetables. The result is that for the average child, the EPA's "acceptable" lifetime level of risk is exceeded by age one.

Recent data from the USDA's Pesticide Data Program (PDP) confirms our results, finding up to 8 different pesticides on a single apple sample and multiple residues across the food supply. Fifty-eight percent of the PDP samples had detectable levels of pesticides. Perhaps more striking, however, was the fact that the average sample with detectable residues had nearly two (1.8) pesticides on it. Meanwhile, the EPA assumes that people are exposed to pesticides in isolation, one pesticide at time.

The National Academy of Sciences report, *Pesticides in the Diets of Infants and Children*, confirmed the presence of multiple pesticides in single foods and provided toxicological context to these findings.

Using computer models designed to simulate the real world probability of people eating foods with residues of five pesticides commonly detected by the FDA, the committee determined that every day, about 1.2 percent of the nation's 2 year olds, or about 50,000 young children receive a dose of these five pesticides in excess of the EPA's acceptable limits. This calculation is based on the combined common toxic effect of these five pesticides, something that the EPA does not consider. Even so, the NAS calculation understates exposure to pesticides causing this effect because, (1) approximately 20 additional pesticides not considered in this analysis cause the same effect, and (2) the committee only looked at exposure to these compounds in eight foods, ignoring other food and environmental sources.

In essence, the Academy found the entire federal pesticide tolerance and regulatory system lacking and particularly inadequate in protecting young children. The Academy concluded that "tolerances are not based primarily on health considerations" and that "the current regulatory system does not specifically consider infants and children."

At the same time the Committee made clear that children need special protection, and that "in the absence of data to the contrary, there should be a presumption of greater toxicity to infants and children." The committee recommended that "the 10-fold factor traditionally used by EPA and FDA for fetal developmental toxicity should also be considered when there is evidence of postnatal developmental toxicity and when data from toxicity testing relative to children are incomplete." They further cited the common occurrence of simultaneous exposures to different pesticides with the same toxic effect and recommend accounting for multiple exposures in regulatory risk assessments.

Since the release of these reports, a steady stream of new studies has been published further linking pesticides and their metabolites to human health effects, particularly breast cancer and other cancers mediated by the endocrine system (hormones). A hearing held in October by Congressman Waxman detailed these new findings and

Winter fruits and vegetables provide an example of the second point. Per capita grape consumption has almost tripled since 1970, largely due to winter availability of the crop from South America. Broccoli consumption is up 460 percent, cauliflower consumption is up 157 percent, bell peppers are up 135 percent, and cucumbers are up 62 percent, spurred on by the availability of winter imports from Mexico and other Central American suppliers.

On the whole, fruit imports are up from 24.8 percent of total fruit consumption in 1970 to 37.9 percent in 1991, and vegetable imports have increased from 6.2 percent to 9 percent of total vegetable consumption.<sup>5</sup> The volume of these imports is staggering. In 1991, the U.S. imported 6.1 billion pounds of bananas, 743 million pounds of tomatoes, 719 million pounds of grapes, 675 million pounds of melons, 342 million pounds of potatoes, and 250 million pounds of pineapples (Table 2).

Table 2

### U.S. Imported Over 9 Billion Pounds of Produce in FY 1991

Commodity	Pounds Imported to the US FY 1991
Bananas	6,083,163,000
Tomatoes	743,460,000
Grapes	719,408,000
Cantaloupe	422,702,000
Potatoes*	342,056,000
Melons, Other	252,663,000
Pineapples	249,862,000
Oranges	96,406,000
Peaches	55,091,000
Celery	36,206,000
Lettuce	33,236,000
Broccoli	31,164,000
Strawberries	27,628,000
Beans, Green	21,809,000
Cauliflower	17,235,000
Apples	9,342,000
Peas, Green	4,888,000
Spinach	4,321,000
Raspberries	3,605,000
Cherries	2,264,000
Blackberries	788,000
Blueberries	708,000
Pears	104,000
Carrots	29,000
<b>TOTAL</b>	<b>9,158,138,000</b>

\*1991-1992 data from USDA Economic Research Service, Foreign Agricultural Trade of the U.S., Sept./Oct. 1993.

Source: Environmental Working Group. Compiled from USDA, APHIS, U.S. Imports of Fruits and Vegetables Under Plant Quarantine Regulations, FY 1991.

<sup>5</sup>Ibid.

emphasized the broad public health implications of widespread environmental contamination with pesticides that disrupt the human hormone system. In testimony at that hearing, the Environmental Working Group reported that 220 million pounds of 19 endocrine system disrupting pesticides are applied each year to 68 crops, and multiple residues of these pesticides end up in the food supply. As an example, we found residues of just one pesticide (endosulfan) that can mimic the human hormone estrogen, in 21 out of 22 fruits and vegetables analyzed by the FDA from 1990 through 1992.

### **FDA's Past Failure to Release Public Residue Data in Acceptable Form**

Before proceeding, I would like to describe the problems encountered by the Environmental Working Group in obtaining pesticide residue data from the Food and Drug Administration.

In the winter of 1993, to gain a better understanding of pesticide residues in the food supply for our report *Pesticides in Children's Food*, we requested three years of FDA pesticide monitoring data under the Freedom of Information Act. We requested the data in electronic form, but our request for the computerized data was denied. The FDA did, however, release to us over 6,000 pages of pesticide monitoring results covering the years 1990 through 1992. While interesting, these data are essentially useless, because hard copy data (in this case a two foot high stack of computer printouts) cannot be analyzed in any meaningful way.

After several months of informal appeals, conversations with staff in the Administrators office, and staff in charge of the data itself, it became clear that we would not be able to obtain this data in electronic form without a long protracted struggle. Rather than pursue this option, we chose instead to pay a commercial scanning firm to read the data for 22 fruits and vegetables heavily consumed by children into suitable electronic format. This process involved some considerable expense on our part both to scan the data and then to employ two proofreaders to verify the accuracy of over 20,000 records of information. In our view this procedure was entirely unnecessary, because the exact same data were released to us in hard copy. The analysis presented below is restricted to 22 fruits and vegetables, as opposed to the entire food supply, precisely because the FDA will not release the federal pesticide residue monitoring data base in electronic form.

The FDA is in the process of releasing this data in electronic form. However, our initial review of the data indicates that the data will be edited and in summary form. Summarized data would not permit the type of evaluation and analysis presented here today.

## Increasing Consumption of Imported Fruit and Vegetables

Since 1970, per capita consumption of fresh fruits and vegetables is up 24 percent.<sup>4</sup> This increase is due to two factors: the increased awareness of the importance of fruits and vegetables in the diet, and year round availability of fresh produce, made possible by increasing imports, particularly from countries that can supply crops during the winter months when domestic producers are largely shut down.

Tropical fruits illustrate the first point. Nearly all bananas and pineapples are imported and historically have been available throughout the year, yet per capita consumption has steadily increased since 1970. Per capita consumption of bananas is up 40 percent over the past twenty years, and pineapple consumption has more than doubled (Table 1).

**Table 1**

### **Per Capita Consumption of Fruits and Vegetables Is Up Dramatically Since 1970**

Commodity	Percent Change of Per Capita Consumption 1970-1991
Broccoli	460%
Cauliflower	157%
Pineapple	157%
Grapes	154%
Bell Peppers	135%
Spinach	133%
Strawberries	106%
Pears	67%
Cucumbers	62%
Onions	56%
Bananas	44%
Tomatoes	27%
Carrots	24%
Lettuce	17%
Peaches	11%
Apples	7%
Celery	-7%
Cherries	-20%
Grapefruit	-28%
Oranges	-48%

Source: Environmental Working Group.  
Compiled from USDA Economic Research Service, Food Consumption, Prices and Expenditures 1970-1992.

<sup>4</sup>USDA Economic Research Service. *Food Consumption, Prices and Expenditures 1970-1992*.



### **The FDA Cannot Effectively Police the Hundreds of Pesticides in Imported Produce**

Increasing imports puts increasing pressure on the FDA to monitor pesticide residues in imported crops. The FDA's current program, however, will never be able to assure the American public that imported foods do not contain pesticides that are either unsafe, not allowed on certain foods, or not allowed in the U.S. food supply at all.

To the FDA's credit, they have recognized this fact. To quote an internal agency memorandum dated September 1993:

"...the total number of samples of a given commodity analyzed for a particular pesticide each year is usually not sufficient to draw defensible conclusions about the residue condition for the whole volume of commodity in commerce."

In response, the FDA has created the Pesticide Incidence and Level Monitoring Program, under which each year the agency targets two crops heavily consumed by infants and children for intensive statistically valid sampling. This year's two crops are apples and rice. The obvious problem with this program is that it only covers two crops each year. Less obvious is that fact that even this more rigorous sampling is not accompanied by sufficiently rigorous testing of samples taken. Although the agency does analyze for several pesticides that require individual analytical methods of detection (the fungicides benomyl and the EBDC's), overall, as with all of the FDA's pesticide monitoring, the program has limited ability to detect hard to find pesticides. These same analytical shortcomings apply to the Total Diet Study described today by Mr. Taylor.

The Pesticide Incidence and Level Monitoring Program is a good, albeit limited response to a difficult situation, but it does not solve the problem. Only a fundamental redesign of the program will render it effective, and only the Congress can initiate and mandate such change.

### **GAO Reports 110 Pesticides Used in Just Five Latin American Nations. Not Registered in the United States**

A 1990 report from the General Accounting Office made clear the difficulty of assuring that imported produce meets U.S. health and safety requirements.<sup>6</sup> A basic point made by the GAO is that foreign nations *do not* design their agricultural and pesticide regulatory systems to meet the economic, social, agricultural, and political goals of the United States. Although many developing nations look to the U.S. in

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<sup>6</sup> United States General Accounting Office report, *Food Safety and Quality: Five Countries' Efforts to Meet U.S. Requirements on Imported Produce*, March 1990.

establishing pesticide food tolerances and regulations, regulatory policies, as in the United States, are established to meet domestic objectives.

As a result, many pesticides that have been canceled, suspended or voluntarily withdrawn by manufacturers in the U.S. for health or environmental reasons *continue to be used in the developing world*. In the five nations examined by the GAO in 1988, one third of 52 pesticides no longer registered in the U.S. were available for use in these five nations. While worrisome from an occupational health and environmental perspective, these pesticides are not FDA's biggest problem, because many of these pesticides are readily detectable by the FDA's routine multi-residue detection methods.

Of greater concern to the FDA are pesticides registered overseas that have never been registered in the U.S. One hundred and ten pesticides were registered in one or more of these five nations (Chile, Costa Rica, Dominican Republic, Guatemala, and Mexico), that had either never been registered or did not have a food tolerance in the United States.

The FDA faces enormous obstacles when trying to detect never registered pesticides in imported food. The biggest problem is that if a pesticide has never been registered for food use in the U.S., the manufacturer is not required to provide the FDA with the information needed to detect and quantify the chemical in various foods (a package of information called a 'standard'). Without a standard, the FDA has no chance of finding and quantifying these pesticides.

#### **The FDA Relies on Multi-Residue Detection Methods That Can Detect Only One-Half of Pesticides in International Commerce**

The FDA has no foreign country field inspectors, and only a cursory idea of what pesticides are applied to crops produced in scores of countries around the world. While inspectors may have a better idea of pesticides used in some major importing countries, such as Mexico, even in these cases the FDA has no specific information about what pesticides were applied to specific shipments, or "lots" as they are called in the trade. For most crops from most other countries, FDA inspectors have little or no idea what pesticides were applied to the food entering the United States.

To make up for this deficiency, the FDA relies on multi-residue pesticide detection methods (MRMs), which under optimal conditions can detect several hundred pesticides in a single analysis. Our review of three years of FDA routine residue monitoring for 22 fruits and vegetables shows that nearly 90 percent of FDA samples analyzed relied exclusively on multi-residue detection methods (Table 3).

Table 3

### FDA Analyzes Only 10% of Imported Fruits and Vegetables Samples Using Single Residue Methods

#### Single Residue Tests Are Needed to Find One-Half of Pesticides Used Worldwide

Commodity	Number of MRM Samples FY 1990-1992	Number of Samples Tested Using SRMs	Percentage of Samples with SRMs
Peas	621	155	25%
Apples	423	96	23%
Pears	593	93	16%
Tomatoes	1270	72	6%
Cantaloupes	519	59	11%
Bananas	686	55	8%
Grapes	563	45	8%
Peaches	367	43	12%
Strawberries	479	43	9%
Broccoli	240	35	15%
Green Beans	454	32	7%
Spinach	96	17	18%
Carrots	244	17	7%
Cherries	124	16	13%
Cauliflower	94	8	9%
Lettuce	167	7	4%
Oranges	157	6	4%
Celery	89	5	6%
Blueberries	234	5	2%
Raspberries	335	5	1%
Blackberries	155	2	1%
Potatoes	128	0	0%
TOTAL	8038	816	10%

Source: Environmental Working Group. Compiled from Food and Drug Administration Pesticide Residue Monitoring Surveillance data for Imported Foods, 1990-1992.

Multi-residue methods, however, have serious limitations, the greatest one being that when fully operational, the FDA's standard MRM can only detect about half of all pesticides used in global food production.<sup>7</sup> Thus, 90 percent of FDA's analyses of

<sup>7</sup> *Pesticides in Food*. House of Representatives hearing before the Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, April 30, 1987.

imported food, could, under the best of circumstances, detect only half the pesticides that might have been used on a given crop entering the U.S. (percentages may vary from crop to crop). The remaining ten percent of samples analyzed by the FDA were tested with so-called single residue detection methods (SRMs), which are needed to detect the remaining 50 percent of pesticides used on food.

A 1987 FDA assessment identified 426 pesticides used worldwide that may be present in imported food. Of these 426, 180 were identified as having moderate to high potential to leave residues in imported food. Of these 180, 41 percent were known to be detected by the FDA's routine multi-residue methods, and 6 percent more were thought to be detectable by these MRMs. An additional 39 percent required single residue methods to be detected. For the remaining 15 percent, no method of detection was available at that time.<sup>8</sup> A 1993 review by the FDA's Center for Food Safety and Applied Nutrition (CSFAN) reports approximately 300 out of 630 pesticides used worldwide for which single residue tests are required. Fourteen of these are pesticides are canceled in the United States, and more than 100 are listed as "foreign use" pesticides.<sup>9</sup> CSFAN also reports 363 metabolites, byproducts, and impurities of these pesticides that are required as part of the tolerance. Here the multi-residue methods falls far short of the mark. Single residue tests are required to find 246, or two thirds of these pesticide byproducts.

Many pesticides that require single residue analyses are of significant health concern. These include the carcinogens benomyl, Alar, and the EBDC fungicides, as well as many compounds canceled in the U.S. for various reasons, such as the arsenical compounds, carbon tetrachloride, EDB, DBCP, and dinoseb.<sup>10</sup> For pesticides used only in foreign countries, we often have no idea of the health or environmental effects.

The obvious limitation of SRMs is that each SRM can detect only one pesticide. The less obvious limitation of an SRM is that on average, each SRM analysis (which can find only one pesticide) is as expensive as an MRM that potentially can detect over 300 pesticides. Because the FDA has no idea what pesticides are applied to a specific shipment of food, an SRM is a high stakes gamble, able to find only one of 550 pesticides (or their byproducts) used worldwide that require single residue tests.

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<sup>8</sup> Ibid.

<sup>9</sup> CSFAN/Division of Pesticides and Industrial Chemicals, *Summary, Pesticides Recovered Through Six Multi-residue Methods Used in FDA Pesticide Program*, personal communication, John Jones, Office of Policy, Planning, and Strategic Initiatives, CSFAN/FDA, January 24, 1994.

<sup>10</sup> *Pesticides in Food*. House of Representatives hearing before the Subcommittee on Oversight and Investigations, Committee on Energy and Commerce House of Representatives, April 30, 1987.



Not surprisingly, the FDA is reluctant to use single methods, even though without them, the best the agency can do is find half of all pesticides in the food supply.

**Table 4**

**FDA Tests An Extremely Small Volume of  
Imported Produce  
with Single Residue Methods**

**Single Residue Tests Are Needed to Find One-Half of  
Pesticides Used Worldwide**

Commodity	Estimated Pounds Imported FY 1990-1992*	Number of Samples Tested Using SRMs	Average Number of Pounds Per SRM
Potatoes	1,026,168,000	0	1,026,168,000
Bananas	18,249,489,000	55	331,808,891
Oranges	289,218,000	6	48,203,000
Grapes	2,158,224,000	45	47,960,533
Tomatoes	2,230,380,000	72	30,977,500
Celery	108,618,000	5	21,723,600
Cantaloupes	1,268,106,000	59	21,493,322
Lettuce	99,708,000	7	14,244,000
Cauliflower	51,705,000	8	6,463,125
Peaches	165,273,000	43	3,843,558
Broccoli	93,492,000	35	2,671,200
Raspberries	10,815,000	5	2,163,000
Green Beans	65,427,000	32	2,044,594
Strawberries	82,884,000	43	1,927,535
Blackberries	2,364,000	2	1,182,000
Spinach	12,963,000	17	762,529
Blueberries	2,124,000	5	424,800
Apples	28,026,000	96	291,938
Cherries	2,264,000	16	141,500
Peas	14,664,000	155	94,606
Pears	312,000	93	3,355
Carrots	29,000	17	1,706
<b>TOTAL</b>	<b>25,962,253,000</b>	<b>816</b>	<b>31,816,487</b>

Three year estimates based on FY 1991 figures from USDA Animal and Plant Health Inspection Service (APHIS).

Source: Environmental Working Group. Compiled from USDA, APHIS, U.S. Imports of Fruits and Vegetables Under Plant and Quarantine Regulations, Fiscal Year 1991. Food and Drug Administration Pesticide Residue Monitoring Surveillance data for Imported Foods, 1990-1992.

Of 22 fruits and vegetables analyzed during 1990 through 1992, about 10 percent of more than 8,000 samples were analyzed using SRMs. We also found that SRMs are concentrated in a few crops, with more than 85 percent of all the SRMs performed on 10 of these 22 crops. Many crops with low SRM numbers are imported in relatively low amounts, such as blackberries. Others, however are imported in substantial volume, including potatoes and oranges (Table 4).

These two crops highlight the futility of FDA's monitoring program. About 1 billion pounds of potatoes were imported into the U.S. from 1990 through 1992, yet during that time, the FDA failed to perform one single residue method analysis. For other crops such as oranges or grapes, the numbers are only slightly less worrisome at one SRM per 50 million pounds imported during the same time frame. On average, for 1990-1992, the FDA performed only one single residue test per 31 million pounds of imports of these crops.

In reality, for certain regions of the country, the situation is far worse than these general numbers indicate.

### **Regional Imbalance: East vs. West**

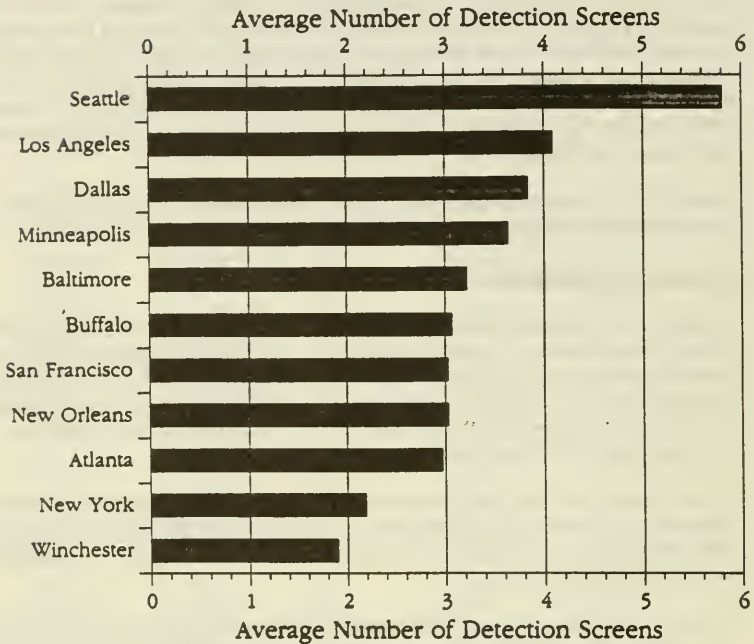
In many FDA regional labs, particularly labs located east of the Mississippi River, multi-residue scans are routinely running at about one half of their capacity; single residue methods are rarely used at all. This imbalance in FDA lab capacity means that imported food arriving at ports east of the Mississippi River, and ultimately consumed by Eastern residents, receives far less regulatory scrutiny than food entering along the Mexican border or on the west coast.

Overall, these inefficiencies limit the pesticide detection capability in eastern labs to about one quarter of all pesticides used worldwide. Specifically, our analysis of FDA routine import pesticide residue monitoring data on 22 fruits and vegetables for 1990-1992 revealed:

1. Eastern labs on average used only half of the five detection screens required to fully detect all pesticides possible with the standard MRM. Out of eleven labs analyzed, the top four labs were all western labs; the bottom seven were all eastern labs, with the exception of San Francisco. On average, eastern labs used 2.63 out of five necessary detection screens, western labs used 3.91 (Figure 1).
2. This pattern held true for all 22 fruits and vegetable analyzed (Figure 2). As would be expected, by testing less thoroughly, eastern labs report a far lower percent of fruits and vegetables with detectable pesticide residues (Figure 3). The near uniformity of this finding across all crops indicates that a lack of testing, not fewer residues, is the cause of this discrepancy. From 20 to 100 more pesticides would be detectable in a typical western multi-residue analysis than in a typical eastern multi-residue analysis.

Figure 1

## FDA's Eastern Labs Use Fewer Pesticide Detection Screens on Imported Fruits and Vegetables\*



\* Samples analyzed include the following 22 foods: Apples, Bananas, Blackberries, Blueberries, Broccoli, Cantaloupes, Carrots, Cauliflower, Celery, Cherries, Grapes, Green Beans, Lettuce, Oranges, Peas, Peaches, Pears, Potatoes, Spinach, Strawberries, Raspberries, and Tomatoes.

† Eastern Labs include: Atlanta, Buffalo, Baltimore, New Orleans, New York, and Winchester, MA.

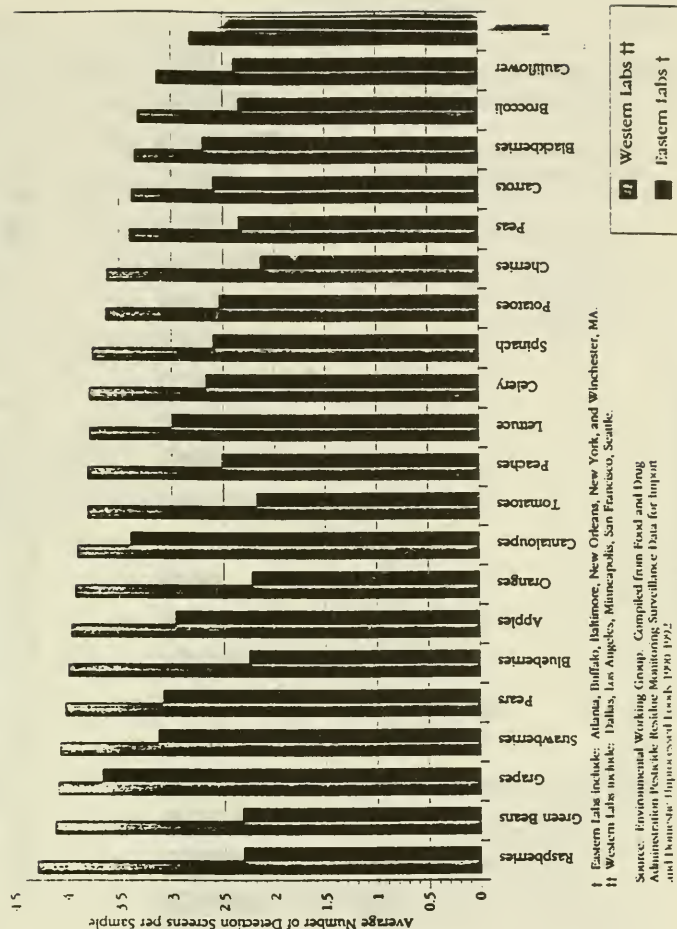
†† Western Labs include: Dallas, Los Angeles, Minneapolis, San Francisco, Seattle.

Source: Environmental Working Group. Compiled from Food and Drug Administration Pesticide Residue Monitoring Surveillance Data for Import and Domestic Unprocessed Foods 1990-1992.

Figure 2

# Fruits and Vegetables Consumed East of the Mississippi are Less Thoroughly Tested by FDA

Eastern Labs Use Multi-Residue Tests Less Rigorously



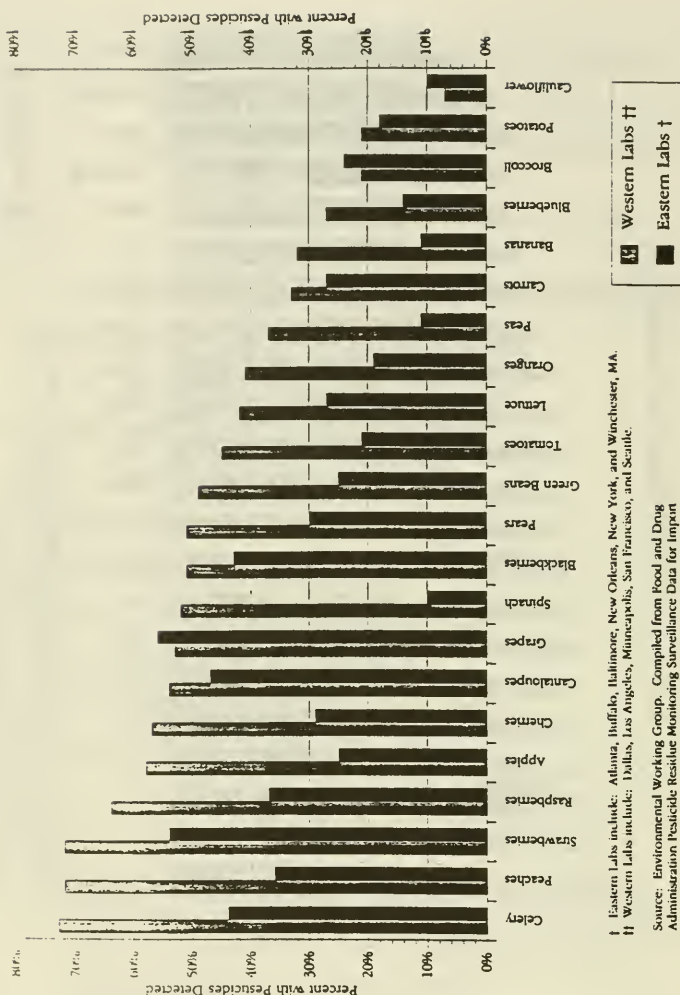
† Eastern Labs include: Atlanta, Buffalo, Baltimore, New Orleans, New York, and Winchester, MA.

†† Western Labs include: Dallas, Los Angeles, Minneapolis, San Francisco, Seattle.

Source: Environmental Working Group. Compiled from Food and Drug Administration Pesticide Residue Monitoring Surveillance Data for Import and Domestic Unprocessed Foods, 1990-1992.



Figure 3  
 FDA's Eastern Labs Test Less Rigorously:  
 Find Fewer Pesticides



† Eastern Labs include: Atlanta, Buffalo, Dallas, Houston, New Orleans, New York, and Winchester, MA.

‡ Western Labs include: Dallas, Los Angeles, Minneapolis, San Francisco, and Seattle.

Source: Environmental Working Group. Compiled from Food and Drug Administration Pesticide Residue Monitoring Surveillance Data for Import and Domestic Unprocessed Foods 1990-1992.

3. For single residue analyses the disparities are even more dramatic. According to the FDA, 300 out of 630 pesticides used worldwide require single residue tests to be found in food. At least 80 of these are characterized by the agency as moderately or highly likely to be found in imported food. In eastern labs, however, the likelihood of finding any of these pesticides is near zero. On nearly three quarters of these crops (16 out of 22), no single residue tests were performed during the entire three year period. On one quarter of these crops (6) a total of 40 single residue tests were conducted; 32 of these (80 percent) were on peaches and apples (Table 5). Western labs, in contrast, used substantially more single residue tests in total (Figure 4) and by crop (Figure 5).

Table 5

### FDA's Eastern Labs Conduct Almost No Single Residue Tests:

Nearly 75% of Crops Analyzed Received No Single Residue Tests At All

Commodity	Number of Eastern Samples Using SRMs FY 1990-1992*
Peaches	18
Apples	14
Cherries	5
Oranges	1
Raspberries	1
Tomatoes	1
Bananas	0
Blackberries	0
Blueberries	0
Broccoli	0
Cantaloupes	0
Carrots	0
Cauliflower	0
Celery	0
Grapes	0
Green Beans	0
Lettuce	0
Pears	0
Peas	0
Potatoes	0
Spinach	0
Strawberries	0
<b>TOTAL</b>	<b>40</b>

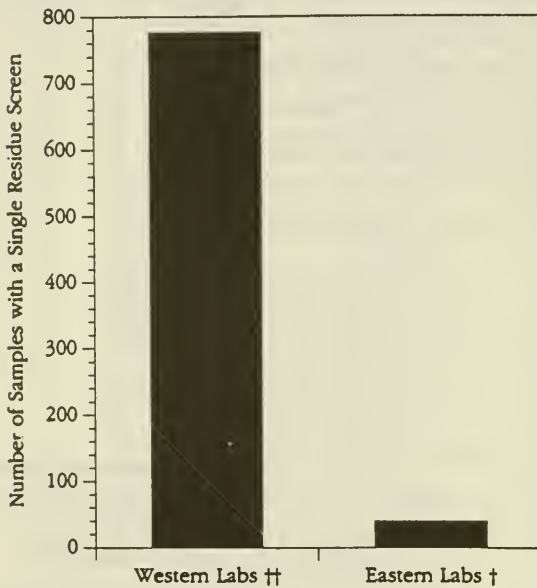
\*FDA lab analysis includes Atlanta, Baltimore, Buffalo, New Orleans, New York and Winchester, MA labs.

Source: Environmental Working Group.  
Compiled from Food and Drug Administration  
Pesticide Residue Monitoring Surveillance,  
data for Imported Foods 1991.

Figure 4

## FDA's Eastern Labs Conduct Almost No Single Residue Tests:

Single Residue Detection Screens Rarely Used on Fruits and Vegetables Heavily Consumed by Young Children



- \* Samples analyzed include the following 22 foods: Apples, Bananas, Blackberries, Blueberries, Broccoli, Cantaloupes, Carrots, Cauliflower, Celery, Cherries, Grapes, Green Beans, Lettuce, Oranges, Peas, Peaches, Pears, Potatoes, Spinach, Strawberries, Raspberries, and Tomatoes.

† Eastern Labs include: Atlanta, Buffalo, Baltimore, New Orleans, New York, and Winchester, MA.

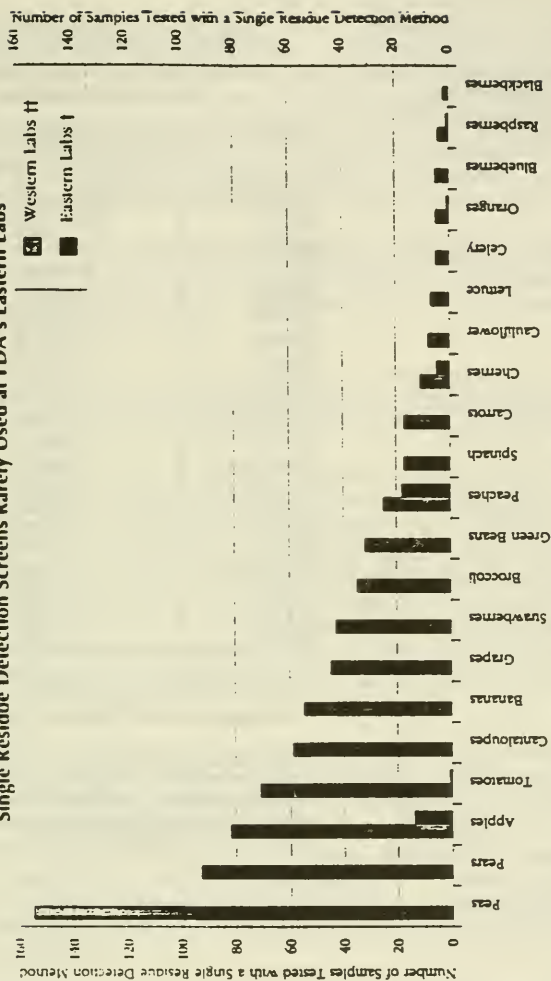
†† Western Labs include: Dallas, Los Angeles, Minneapolis, San Francisco, and Seattle.

Source: Environmental Working Group. Compiled from Food and Drug Administration Pesticide Residue Monitoring Surveillance Data for Import and Domestic Unprocessed Foods 1990-1992.

Figure 5

# Imported Fruits and Vegetables Heavily Consumed by East Coast Children are Virtually Untested for Scores of Pesticides:

Single Residue Detection Screens Rarely Used at FDA's Eastern Labs



† Eastern Labs include: Atlanta, Buffalo, Baltimore, New Orleans, New York, and Winchester, MA  
 ‡ Western Labs include: Dallas, Los Angeles, Minneapolis, San Francisco, and Seattle.

Source: Environmental Working Group. Compiled from Food and Drug Administration Pesticide Residue Monitoring Surveillance Data for Import and Domestic Unprocessed Fruits, 1990-1992.



4. In certain years the results were even worse. Nearly 7 billion pounds of these fruits and vegetables entered east coast ports in FY 1991. No single residue analyses were performed on the entire 7 billion pounds (Table 6).

Table 6

**FDA Eastern Labs Used No Single Residue Methods in FY 1991 on 22 Imported Fruits and Vegetables**

Commodity	Pounds Imported to Eastern Ports FY 1991*	Number of Samples Using SRMs
Bananas	4,628,153,000	0
Grapes	509,883,000	0
Cantaloupe	127,417,000	0
Pears	89,812,000	0
Apples	65,691,000	0
Oranges	51,740,000	0
Peaches	42,554,000	0
Broccoli	10,727,000	0
Tomatoes	10,333,000	0
Raspberries	3,675,000	0
Strawberries	2,581,000	0
Cherries	2,358,000	0
Beans, Green	1,545,000	0
Blackberries	810,000	0
Celery	405,000	0
Peas, Green	306,000	0
Carrots	183,000	0
Blueberries	160,000	0
Lettuce	122,000	0
Cauliflower	4,000	0
Spinach	4,000	0

\*Eastern Ports include all food entering the U.S. east of the Mississippi River. FDA lab analysis includes Atlanta, Baltimore, Buffalo, New Orleans, New York and Winchester, MA labs.

Sources: Environmental Working Group. Compiled from USDA APHIS, U.S. Imports of Fruits and Vegetables Under Plant and Quarantine Regulations, Fiscal Year 1991. Compiled from Food and Drug Administration Pesticide Residue Monitoring Surveillance data for Imported Foods 1991.

## Conclusions and Recommendations

The Congress has charged the FDA with monitoring the food supply, including imported food, for pesticide residues. The basic duty is to search for tolerance violations and to ensure that food in violation of U.S. standards does not move in interstate commerce. Our analysis of FDA's own data confirms that for imported food, these goals are not accomplished with reasonable certainty. This task will only become more complicated as agricultural trade continues to grow.

The question before this committee is whether or not the current program can ever achieve its objectives. I submit to you that it cannot, and further, that in the absence of a fundamental redesign, the FDA pesticide residue monitoring program will never be able to achieve its goals.

The solution is not more taxpayer money for a vastly enlarged federal testing program, but rather more information. Importers, and growers have the information that the FDA needs, and the Congress should force them to provide it.

In order to import food into this country, importers must be required to provide certification from accredited labs, that all residues are in compliance with U.S. standards. In addition, all pesticides applied to the crop must be listed on each import shipment, even pesticides whose residues typically degrade below levels normally detected by routine analysis. These rules will require more effort on the part of importers, especially in terms of maintaining lot integrity, but they are nonetheless readily achievable. To ensure the credibility of such an arrangement, private labs should be rewarded for finding violations, and they should be audited quarterly through mandatory analyses of blind samples spiked with pesticides and sent to these labs by the FDA.

In fact the FDA currently operates a program for habitual pesticide residue violators that is similar in design to what we are recommending. The best example of the effectiveness of such an approach is with the Guatemalan snow pea industry, where currently every shipment entering the country is tested by private or FDA labs for compliance with federal tolerances. As suggested above, the FDA tests these private labs on a quarterly basis. The result is reasonable public confidence that residues on these snow peas are in compliance with U.S. standards, a dramatic improvement from just several years ago, when the industry was in routine violation of tolerances for several pesticides.

One argument used against reversing the burden of compliance is that it is biased against small farmers. The Guatemalan experience, however, indicates just the opposite. Any small farmer shipping produce overseas, does so through some type of marketing cooperative. This is the case with these snow pea growers, many of whom farm as little as one half hectare. Guatemalan farmers have utilized this cooperative marketing mechanism as a means to identify individual grower

shipments and violations, and as a way to shoulder the costs of additional testing. The majority of importers into the United State operate far more lucrative operations than these Guatemalan peasants and could easily bear the burden of residue monitoring.

In essence we are calling for a role reversal. The private sector must be responsible for residue testing; the FDA should basically police the labs, and focus its limited testing resources on trouble spots. The appropriate analogy is the manner in which health and safety studies are conducted to register pesticides with the EPA. The EPA does not commission and pay for health and safety tests, the pesticide registrant incurs these costs to obtain the privilege of selling the pesticide. The EPA in turn audits both the results of the studies and the labs that conduct the animal tests. The system is not perfect, but is far preferable to the alternative which would produce far less meaningful information.

Similarly, the FDA and taxpayers should not be solely responsible for all pesticide residue monitoring and enforcement. Instead, the food sector of the economy, which accounts for a greater percentage of the GNP than the health care industry, must be required to prove with reasonable certainty that imported and domestic food marketed in the U.S. meets U.S. food safety standards.

# GREENPEACE

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STATEMENT OF SANDRA MARQUARDT, GREENPEACE

BEFORE THE SUBCOMMITTEE ON

ECONOMIC POLICY, TRADE AND THE ENVIRONMENT

OF THE HOUSE FOREIGN AFFAIRS COMMITTEE

JANUARY 26, 1994

Thank you Mr. Gejdenson and Members of the Subcommittee for inviting me to continue our discussion from last year on pesticide exports, or the "Circle of Poison."

When I first heard in August of the Administration's plans to ban the export of banned pesticides, I was excited. I knew that former Senator Gore had been a sponsor since 1989 of strong "Circle" legislation to do just that. I also knew that former Representative Espy, now USDA Administrator, had voted with "Circle" sponsor Representative Synar in October, 1990. The vote would have instructed House conferees to support the stronger Senate "Circle" language in the Farm Bill conference committee.

A month later, the specifics were announced. The Administration offered a proposal that was not only weaker than that of the Bush Administration, but also weaker than that of the regulated industry! In fact, it was also weaker than the legislation which the House had already voted to support in 1990 as part of the Farm Bill. In short, it was so riddled with exemptions that it would have done next to nothing to curb toxic exports.

Since then, there has been little improvement to the Administration's proposal. The only glimmer of light came in that there is now support for a ban on the export of pesticides banned or almost banned for human AND/OR environmental effects (versus just health effects).

Other than that, the provisions concerning the export of never-registered and voluntarily cancelled pesticides as well as those which are highly hazardous yet registered here remain so weak as to ensure business as usual. Furthermore, the words "non-chemical pest management," prevalent in the 1990 House approved language, are never uttered in the new proposal.

In short, the Clinton/Gore proposal is an industry dream come true.

Let's look at some of the key provisions:



### NEVER-REGISTERED PESTICIDES:

The Administration proposes to permit the export of pesticides which have never been registered in the U.S. if they are registered in three countries which have "credible regulatory systems," whatever that may mean. Not only does this set the Administration up for countless encounters with countries who don't like to be told that their systems lack credibility. It also means that EPA would not have to do even a cursory review as in the 1990 House bill, let alone a full toxicology review as in the bills supported by Mr Gore and Mr. Espy in their former incarnations.

This guarantees business as usual since all the never-registered pesticides are registered in what most people consider "developed" countries and most all the never-registered pesticides are registered in at least 3 countries which are members of the Organization for Economic Cooperation and Development (OECD).

Since when did the U.S. start relying on the registration programs of other countries? Historically, what is acceptable in another country may not be acceptable to us. For example, as of 1992, Norway still permitted the use of DDT (U.S.-banned in 1972), while New Zealand, Australia and Japan still permitted the use of EDB, banned here in 1983. (Table 1) France, Germany and the Netherlands have all registered the DowElanco herbicide haloxyfop although EPA never would, concerned as it was that haloxyfop was a "probable human carcinogen." (Table 2)

This position also establishes a new double standard. We consider EPA's word final for banned pesticides but rely on some other country's word for all other decisions.

As an example of what kind of never-registered pesticides we are exporting I will use the herbicide called acetochlor. Made by Monsanto at its Muscatine, Iowa plant, it is primarily exported to Europe, the Ukraine, the CIS and Argentina. But the U.S. has not registered it even though both Monsanto and ICI have been trying to get the product registered since at least 1983.

Could it be because acetochlor causes not just one but 6 different forms of cancer in lab animals (liver, kidneys, lungs, nasal, thyroid and uterus) and EPA considers it a "probable human carcinogen?" Greenpeace has been able to track the export of at least 5 million pounds in 1992 and almost 11 million pounds of acetochlor to Belgium (where it is not even registered but merely transhipped elsewhere) and Argentina. (See Table 3). Our 1992 report on exported pesticides points out the problems posed by several other never-registered pesticides - cancer, birth defects, nerve damage.

If the U.S. doesn't review these "for export only" pesticides, we won't know what we are exposing our own manufacturing workers and consumers to and what we are selling to our friends overseas.

### VOLUNTARILY CANCELLED PESTICIDES:

EPA last September stated that pesticides voluntarily cancelled by the manufacturer for health reasons would not be able to be exported. I know of few voluntarily cancelled

active ingredients which fit that category since the manufacturers invariably say the withdrawal is for "economic reasons." EPA is mute on the issue today, so I will comment on their former proposal.

Without a change in the law, Ciba Geigy will be able to keep exporting their herbicide propazine, made in St. Gabriel, Louisiana. EPA considers propazine to be a possible human breast carcinogen and ground water contaminant and asked Ciba-Geigy for more studies. Rather than do the studies, Ciba-Geigy withdrew propazine from the U.S. "for economic reasons" yet keeps shipping it out. (For competitive purposes, the company conceals the name of the product in shipping records, so we are not able to determine the poundage exported.) We note that Mr. Gore's 1992 Senate language prohibited the export of voluntarily cancelled active ingredients whether withdrawn for health, environmental or economic reasons. (S 896)

EPA says they will be able to prove that the Agency had health concerns about the product. However, even if EPA changes the language in FIFRA which currently permits the companies to state whatever reason they want for withdrawal, I see nothing but lawsuits piling up on EPA's already overflowing plate.

#### PRODUCT STEWARDSHIP AND ALTERNATIVES:

Not only would EPA's proposal do little to stem the flow of the banned and never-registered pesticides, but now EPA wants to give a hefty \$4 million in technical assistance grants, to help foreign users to learn to apply pesticides "safely."

Mr. Gejdenson, and Members of the Subcommittee, such "product stewardship" programs don't work and have been and will continue to be a complete waste of money. Let me give two examples of why not.

In July, 1992, 7 workers in Nicaragua were sent to the emergency room with uncontrollable vomiting, dizziness and other symptoms after mixing with their arms and sticks the highly toxic, never-registered insecticide carbosulfan. This product is made by the U.S. firm FMC in Institute, West Virginia. According to FMC, the farm manager had attended a company-sponsored course on the "safe use" of carbosulfan (Marshal). (See FMC letter and photos.)

Secondly, I just got back from doing research on the use of U.S. pesticides in Costa Rica, including on U.S.-owned banana plantations. I have done similar research in Australia, the Philippines, Malaysia, Thailand, Guatemala, Honduras and Nicaragua. Where ever I go, whenever I ask, everyone KNOWS they should wear a mask, or gloves, or boots. Or whatever. BUT the fact is that they don't. Protective clothing is too hot. Too uncomfortable. Too expensive. (See photos of Standard Fruit and Del Monte banana packing facilities in Costa Rica.)

Instead, the \$4 million should instead go to programs teaching people how to get OFF the pesticide treadmill, whether through organic or Integrated Pest Management (IPM) methods. Indonesia's IPM in rice program -initially sponsored by the United Nations Food and Agricultural Organization (FAO), now the government - was so successful that both

pesticide use and poisonings have been reduced a whopping 60-80 percent if not more. The FAO program is now taking its program to other Southeast Asian countries (Bangladesh, the Philippines, Sri Lanka) and Central America. Furthermore, the 1992 UN "Earth Summit" recommended that governments adopt IPM. In the words of chapter 14.74 of Agenda 21, "IPM, which combines biological control, host plant resistance and appropriate farming practices and minimizes the use of pesticides, is the best option for the future, as it guarantees yields, reduces costs, is environmentally friendly and contributes to the overall sustainability of agriculture." The Asian Development Bank (ADB) has given a \$760,000 technical assistance grant for IPM on cotton in India, China and Pakistan. The United States should not be throwing away its money on obsolete technologies.

#### FOOD TESTING:

The sieve called border inspection is another reason for stopping the Circle of Poison before it starts.

FDA inspects only one percent of all food shipments, and only started looking for the never-registered pesticides when the issue became more pronounced over the last few years. It still is not able to test for at least 50% of the never-registered pesticides exported from the U.S. in 1992. (See Table 4) The fact that borders stay open when inspectors are not on duty at such major ports as in Nogales, Arizona, compounds the problem. Chlordane and heptachlor in 1993 came in on salmon from Canada and cantaloupes and squash from Costa Rica. In 1992, heptachlor came in on Mexican carrots and the never-registered insecticide prothiophos came in on Thai cabbage. While inspectors fortunately caught these products before they reached U.S. stores, we must consider what was on the other 99% of imported foods which go unchecked.

USDA has only 78 port inspection personnel for 160 official import establishments. It doesn't even bother testing for pesticides not registered for use in this country.

#### CONCLUSION

Rep. Gejdenson and other Members. Whether it is the poisoning of Nicaraguan peanut workers, chlordane and heptachlor on our imported foods, or the destruction of a man's promising musical career from chlordane and heptachlor poisoning, as we will soon hear, putting trust in the pesticide industry to control the use of their pesticides is like putting the proverbial fox in charge of the hen house. It doesn't make sense.

I urge Vice President Gore, Secretary Espy and Administrator Browner to remember their support for truly strong pesticide export legislation that would end the double standard which allows U.S. companies to export pesticides too toxic for use here. This legislation was, and is, backed by more than 100 organizations from across the consumer, environmental, farming, medical/public health and religious sectors. We urge the Administration to make that former vision a current reality. (See overview of former bill sponsored by then-Senator Gore.)

Thank you.

1993				
FMC	New Orleans	Italy	187,500	
		Spain	97,600	
		Belgium	23,500	
		El Salvador	20,500	
		Uganda	52,400	
		Spain	29,300	
	Jacksonville	Netherlands	53,900	
	Baltimore	Sweden	8,000	
		Total		672,700 1,518

Chlordane

1992				
Ecomark	Miami	Venezuela	1,200	1,200
Velsicol Company	Houston	Australia	44,200	
	Los Angeles	Korea Rep.	42,400	
	New Orleans	Netherlands	339,500	
		Argentina	25,600	
	Oakland	Singapore	634,300	
		Thailand	42,400	
		Korea Rep.	42,400	
	Savannah	South Africa	127,300	1,298,100
		Total		1,299,300
1993				
Velsicol Company	Long Beach	Singapore	442,000	
	New Orleans	Netherlands	176,800	618,800
		Total		618,800 1,918

Heptachlor

1992				
Ivarin Lines	Houston	Brazil	86,600	86,600
Velsicol Company	Galveston	Netherlands	259,800	
	Houston	Australia	520,000	
	Los Angeles	India	71,400	
		Australia	21,700	
	New Orleans	Netherlands	905,100	
		Brazil	82,400	
		Argentina	3,700	1,864,100
		Total		1,950,700

1993				
Velsicol Comp.	Houston	Australia	86,800	
	New Orleans	Netherlands	2,033,000	
		Brazil	216,500	2,336,300
		Total		2,336,300 4,287

Chlorobenzene

1992				
Velsicol Comp.	Galveston	Brazil	82,400	
	Houston	Australia	108,700	
		Netherlands	42,400	
	LA	Korea Republi	84,900	
	New Orleans	Netherlands	86,600	
		Brazil	82,400	
		Argentina	3,500	
	Oakland	Singapore	254,600	



Table 5

SHIPMENT OF PESTICIDE TARGETS FROM ALL PORT IN THE U.S  
1992 TO NOVEMBER 1993

Pesticide/Exporter	Port	Loadin	Destination	Amount (lbs)	Total Exporter (lbs)	Total 33 months (lbs)
<u>Acetochlor</u>						
1992						
ICI America	New Orleans		Argentina	33,200	33,200	
Leshcho	Norfolk		Belgium	1,608,400	1,608,400	
Order	Houston		Belgium	1,121,600		
	Norfolk		Belgium	1,979,600		
			Netherlands	301,500		
	Oakland		Belgium	27,100	3,429,800	
			Total		5,071,400	
1993						
Challenge Int.	Portsmouth		Belgium	264,000		
	New Orleans		Argentina	218,000		
			Belgium	104,200		
	Norfolk		Argentina	153,200	739,400	
Leshcho	Norfolk		Belgium	657,200	657,200	
Order	Houston		Belgium	2,221,200		
				2,422,900		
				881,800		
				2,203,900	7,729,800	
	Norfolk		Belgium	447,600	447,600	
United Transport-	Portsmouth		Belgium	748,300		
Tankcontainers	(VA)					
	Norfolk		Belgium	396,800	1,145,100	
			Total		10,719,100	15,790,
<u>Cadusafos</u>						
1992						
FMC	Pt Everglad		WW I	22,500	22,500	
			Total		22,500	
1993						
FMC	New Orleans		Costa Rica	297,500		
			Total		297,500	320,
<u>Carbosulfan</u>						
1992						
Agricultural Chem.	Miami		F W IND	1,100	1,100	
FMC	Baltimore		Belgium	37,400		
			Brazil	18,600		
			Argentina	10,400		
	New Orleans		Italy	1,692,600		
			Belgium	498,800		
			Netherlands	246,700		
			El Salvador	11,000		
	Norfolk		Japan	53,700		
	Oakland		Pakistan	223,400		
			China	24,500	2,817,100	
Nordstar Line	Jacksonville		Netherlands	27,900	27,900	
			Total		2,846,100	

1993					
Veisicol Comp.					
	Savannah	Thailand	42,400		
		REP SAP	42,400	830,300	
		Total		830,300	
	Houston	Australia	22,100		
	LA	Australia	10,800		
	Long Beach	Singapore	353,600		
	New Orleans	Netherlands	43,300	429,800	
		Total		429,800	1,260,
		GRAND TOTAL 1992- <del>NOVEMBER</del> 1993			27,094,

**TABLE 1**  
**BANNED PESTICIDES REGISTERED IN OECD COUNTRIES**  
**(1992)**

chlordanes	
DDT	Norway
heptachlor	Australia, Finland, Sweden
cyhexatin	Canada, France, the Netherlands, Portugal, Spain, Switzerland
daminozide (Alar)	Greece, New Zealand, Portugal, Sweden, UK
dinoseb	Australia, Canada, Japan, Luxembourg
EDB	Australia, Greece, Japan, New Zealand
2,4,5-T	Belgium, France

Source:  
Greenpeace, 1992 List

Countries Which Have Banned or Severely Restricted the Use of Chlordane and/or Heptachlor. Greenpeace. In progress.

TABLE 2

REGISTRATION OF SELECTED BANNED AND NEVER-REGISTERED PESTICIDES  
IN MEMBER COUNTRIES OF  
THE ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD)

acetochlor

butachlor Japan, Spain

cadusafos France

carbosulfan Australia, France, Germany, Italy, Luxembourg,  
Netherlands, New Zealand, Norway, Spain

haloxyfop(\*) Australia, Belgium, France, Germany, Italy,  
Luxembourg, the Netherlands, New Zealand, Norway,  
Spain

nuarimol (\*\*) Belgium, Denmark, France, Germany, Greece,  
Ireland, Italy, Luxembourg, Portugal, Spain,  
Switzerland, UK

prothiophos Australia, Japan, New Zealand

(\*) production of haloxyfop moved from Midland, MI to France in this year. Still exported from the U.S. in 1993. (Gary Hamlin, DowElanco, January 21, 1994)

(\*\*) production of nuarimol moved to Switzerland in 1992. (Gary Hamlin, DowElanco, January 21, 1994)

Sources:

Marquardt, Sandra. Gateway to Global Contamination: Louisiana, the Mississippi River and the Circle of Poison. Greenpeace, In progress.

Marquardt, Sandra. Never-Registered Pesticides: Rejected Toxics Join the Circle of Poison - Five Case Studies of Pesticides Manufactured by DowElanco, FMC Corporation, Miles, Inc. and Monsanto Agricultural Company. Greenpeace, 1992.



**TABLE 3**  
**POUNDS OF NEVER-REGISTERED PESTICIDES**  
**EXPORTED FROM THE U.S. IN 1993**

NAME OF PESTICIDE	AMOUNT (in pounds)	
	1992	1993
acetochlor	5,071,400	10,719,100
cadusafos*	22,500	1,229,000
carbosulfan*	2,846,100	297,000
chlordan	1,299,300	1,918,100
heptachlor	1,950,700	4,287,000
organochlorines (from Velsicol)	830,000	430,000
TOTAL	12,020,000	17,893,900

SOURCE: Journal of Commerce, Pesticide Import, Export Reporting Service, January 1994.

\* Costa Rica's own import data notes that 1,728,867 pounds of cadusafos was imported in 1993. Philippine data showed the import of 30,720 pounds of cadusafos and 30,592 pounds of carbosulfan in 1992 which was not the PIERS records.

See Table 5 for complete list of exports of select pesticides from the U.S.

TABLE 4

**NEVER-REGISTERED PESTICIDES WHICH CAN BE TESTED FOR  
USING THE LUKE METHOD (\*)**

TOTAL: 12 out of 24 = 50%

acetochlor	no
alphamethrin	??
butachlor	Luke
cadusafos	Luke
carbendazim	Luke
carbosulfan	Luke
diafenthiuron	no
dithiopyr	no
dipropetryn	no
esprocarb	no
ethametsul-	no
furon methyl	
fluroglycofen	no
flusilazole	Luke
haloxyfop	no
nuarimol	Luke
propazine	Luke
prosulfocarb	no
prothiophos	Luke
simetryn	Luke
terbumeton	no
terbuconazole	no
terbutylazine	Luke
terbutryn	Luke
thiometon	Luke

(\*) pesticides on 1992 NACA list of unregistered pesticides and according to 1992 and 1993 FDA responses.

Source:

- Food and Drug Administration, Statement for the Record, September 20, 1991
- Food and Drug Administration, Pesticide Residues in Food, 1992

# GREENPEACE ACTION

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## HIGHLIGHTS OF S.898 AND H.R. 2083 THE CIRCLE OF POISON PREVENTION ACT

### TITLE I: EXPORTED PESTICIDES

- Prohibits the export of pesticides that are not registered for domestic use, do not have a food residue tolerance or have had all or nearly all registrations (by volume) canceled. Pesticides which are not registered for use on food cannot be exported for use on food.

- Permits temporary exemptions for emergencies such as famine or communicable disease. The Administrator must determine that the pesticides will be used only when all other methods of control have been exhausted and any excess stock remaining after the program must be returned to sender.

- Permits governments of importing countries to refuse the import of "particularly hazardous pesticides," including restricted use pesticides, pesticides which are the subject of special review, suspension or cancellation proceedings, or a conditional registration, pesticides on the World Health Organization's lists of Class IA "extremely hazardous" and IB "highly hazardous" pesticides, and pesticides containing highly toxic inert ingredients on EPA's List I: "Inerts of Toxicological Concern."

- Permits citizens to file suit against violators of the statute to enforce its provisions.

- Requires EPA to provide worldwide notification when a new registration of a pesticide is granted, a registration is canceled, or the regulatory status of an existing registration is otherwise changed. Information on nonchemical alternatives to the pesticide must be provided.

- Requires EPA to sponsor international meetings of foreign governments, non-governmental organizations and other interested parties, to develop improved strategies for sustainable agriculture, including integrated pest management and the use of non-chemical alternatives.

- Requires EPA to provide FDA with information on exported pesticides and crops on which they may be used in order to aid FDA in targeting its residue monitoring efforts better.

**TITLE II: PESTICIDE RESIDUE MONITORING**

- Requires FDA to summarize information collected on the types of foods tested, and the pesticides looked for, as well as volume of exported products.

**TITLE III: PESTICIDE TOLERANCES**

- Automatically revokes tolerances for pesticide residues on food for pesticides no longer registered in the United States.

- Requires that all pesticides to be used on food have a practical test method (including those pesticides already on the market).

**TITLE IV: PESTICIDE INFORMATION**

- Requires food importers to identify each pesticide known to be, or customarily used on, or in connection with, that food item to facilitate the border testing process. This section amends the Food, Drug and Cosmetic Act, the Federal Meat Inspection Act, the Poultry Products Inspection Act and the Egg Products Inspection Act.

- Requires agricultural attaches to file annual reports providing information on the customary use of pesticides on foods in the respective country, particularly on those foods intended for U.S. markets.



## Misused Farm Chemicals Poisoning Poor Nations

By Bill Lambrecht  
Press-Dispatch Washington Bureau  
© 1993 St. Louis Post-Dispatch

**CHIMALTENANGO, Guatemala** — In the rich, volcanic soils of the Guatemalan highlands, descendants of the fabled Mayan Indians spray chemicals on broccoli bound for dinner tables in the United States.

Unknowingly, many run a deadly risk, pesticide poisoning.

The World Health Organization estimates that every year, 25 million people are dying from poisoning. Symptoms of pesticide poisoning — the burning skin, the dizziness, the sense of floating above earth.

About a million of the poisonings are severe, with many victims ending up in hospitals. Thousands die.

They are casualties of modern chemical farming but with a primitive twist: the pesticides are sprayed not by big machines but by people — sometimes children — with tanks strapped to their backs.

Many farmers feel trapped between the promise of modern farming and the perils of pesticides.

"Sometimes, we're afraid," says Jose Pineda, 40, a Guatemalan farmer who is growing broccoli for export and who has been hospitalized for pesticide poisoning. "It has the promise to help my family and to improve the level of our lives."

U.S. chemical companies are among the world's largest producers of pesticides, exporting about 70 million pounds a year. Some of the exported pesticides can't be used in the United States because they are too dangerous.

U.S. foreign-aid policy encourages the "designer crops that the pesticides are sprayed on — snow peas, broccoli, melons, tropical plants.

U.S. consumers benefit from the cornucopia of fruits and vegetables that flow from the market shelves in the 'land of the future.' But there may also be

See PESTICIDES, Page 14

### INSIDE



- Oscar Lopez Calderon, 17, of Guatemala lingers after attempted suicide by pesticide 14A
- Ignorance and Latin American machismo hinder efforts to teach safe use of pesticides 14A
- People dump pesticides in river, then scoop up dying fish to sell 14A

First in an occasional series on the use and abuse of pesticides in developing nations.



Thomas Long  
A Guatemalan boy spraying broccoli without gloves, mask and protective clothing. Few of the men, women and children who apply pesticides by hand wear protective clothing.

# Pesticides

Continued from page 1

a risk.

Some crops sent back to the United States are contaminated with residues of dangerous chemicals. This is cause for concern at a time when the National Academy of Sciences is recommending that the U.S. government reduce the chemical residues on fruits and vegetables that American children eat.

Chemical manufacturers respond that the dangers of pesticides are greatly overstated and that statistics on poisonings are unreliable. The manufacturers point to the benefits of pesticides in helping to satisfy the world's demand for food and they sound a refrain: If chemicals are used in proper concentrations and with protective equipment, there would be few problems.

Unfortunately, pesticide abuse — rather than proper use — is the reality of farming in poor countries. A lot of growing happens in four Latin American countries found few farmers taking precautions. Doctors, nurses and farm workers expressed concern about pesticide-related health problems.

In a three-month investigation, the Post-Dispatch found that

- Poisonings and deaths from pesticides are commonplace in farm villages, based on the accounts of residents and health professionals.
- Few of the men, women and children who apply pesticides by hand wear protective clothing or even know that they should. And few programs exist to reach them the dangers of pesticides and how to use them properly.
- Pesticide risk not immediate farm but long-term health problems. In Costa Rica and Honduras, a U.S.-made herbicide called DBP has left thousands of men sterile or impotent or both.
- In the Dominican Republic's "Valley of Death" — so named because of frequent poisonings — chemical farming has backfired. It has upset the ecological balance, leading in an infestation of white flies that ruin the crops for export.

- Since last year, at least 400 shipments of produce from Latin America were shipped with pesticide violations on arrival in the United States. Nevertheless, most imported produce makes its way to supermarket shelves without inspection.
- Food exports from Central America to the United States jumped to \$250 million last year. Among beneficiaries were the United Fruit Co. and United Fruit Co. subsidiaries in Guatemala.

U.S. chemical companies export about 450 million pounds of pesticides each year, with more than 100 million pounds going to the very poor. Most of these pesticides are used in the United States. But they often cause health problems in developing countries when protective gear is not used.

The United States places no restrictions on what chemical companies may ship out of the country. Companies can export chemicals that are banned in the United States because of safety concerns.

"We're humans down here, too, and we don't understand why you send us what you know is not good for you," asserts Dr. Ileana Meria, a physician in a rural Guatemalan hospital.

## Burros Haul Chemicals

In the highlands of Guatemala, farmers carrying machetes walk along rutted roads to the fields, leading burros with oversized loads strapped to their backs. But modern ways have intruded on this centuries-old agricultural scene. Tied to the burros' backs are chemical sprayers and sometimes pesticides.

Down from the hills, along the coasts, the plantations where farm workers are trucked in for a few dollars a day to spray pesticides on sugar cane and citrus fruits.

All told, about 3 million people live off farming in Guatemala, which calls itself "Land of the Eternal Spring" because of its moderate weather. But in this and other growing regions of Central America, and chemical plants wait through the valleys and along the coastal plains. Doctors and nurses worry about growing harm from pesticides.

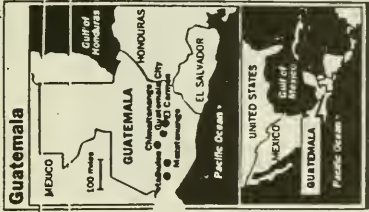
Those who treat the victims assert that pesticide poisoning causes with malaria, poor sanitation and poverty on the list of worst problems in developing nations.

Leading through treacherous, Alvaro Ramirez, a nurse at a public hospital in Retalhuleu, Guatemala, attributes 11 of 12,000 severe poisonings annually in his country from 1986 through 1990. He believes that the true number may be five times greater and that hundreds of Guatemalans die from farm chemicals each year.

"What we have here is a problem getting worse. A problem that puts the poorest in our poor," she says.

## 'People Die All Over'

Here, people die all over, but the government doesn't



keep track," says Antonio Thomen, who heads the Dominican Republic's government-sponsored environmental conservation program.

quaters in La Vega, a leader reads from a list of 14 pesticide fatalities since last year. Among them: Felipe Santos, 40, who became paralyzed from insecticides before his death; Ramon Gomez, 35, who worked with strong herbicides and seldom washed his hands; Mariano Borges, 40, who smoked cigarettes while muzzing and spraying chemicals.

In developing countries, taking stock of pesticide casualties is next to impossible. Poor and politically unstable countries seldom keep records about poisonings.

The World Health Organization estimates that a million people around the world experience severe, moderate or mild pesticide poisoning each year. Of those, about 10,000 people die.

The chemical manufacturers challenge those statistics. Without reliable studies around the world, estimates of widespread poisonings may be faulty, they say. A case of "pesticide poisoning" may only be a skin rash.

But university researchers in Central America say that they have documented a widespread pattern of pesticide poisoning that supports the World Health Organization's estimates. In Costa Rica, Dr. Catherine Wesseling has built the region's best computer tracking system for pesticide problems. A professor at the National University, she has used hospital records as the basis for her estimate that more than 40,200 pesticide injuries have occurred in Costa Rica since 1983.

In one study of 25 farmers growing melons for export, Wesseling found that three-fourths had suffered serious health problems from pesticides.

At Guatemala's University of San Carlos, Dr. Heriberto Arreaga, a professor who is the country's foremost researcher on pesticides, has documented an average of 12,000 severe poisonings annually in his country from 1986 through 1990. He believes that the true number may be five times greater and that hundreds of Guatemalans die from farm chemicals each year.

The chemical companies agree with doctors and researchers. Many of the problems could be avoided by pesticides, they say.

John McCarthy, vice president of the National Agricultural

tural Chemicals Association, says that U.S. companies have responded to the problem, providing hundreds of thousands of dollars for "safe-use" programs.

"It's not our mission or our style to just take money," McCarthy said.

While education programs are widely endorsed, some doctors contend that pesticides in the developing world are so out of control that the only answers are to limit their flow and to steer people away from them.

"What people need to understand is that many of these chemicals are too toxic, the effects too acute, to be managed safely here," assert Wesseling, the physician from Costa Rica.

## Promise Tempts Farmers

Cecilio Aguilar has felt sickness from pesticides and been tempted by their promise.

Aguilar, 42, knows people who have died from chemicals and he wonders what the spraying has done over the years to the long-term health of his neighbors and to the environment.

"Sometimes, I feel sick if I just smell the pesticides," Aguilar says.

By word of mouth, by cable television and from safe-use programs, farmers like Aguilar are hearing more about the threats from pesticides.

But habits are already set, says Frank Taylor, who is affiliated with a privately funded clinic that works with Guatemalan farmers. "They hear advertising on the radio. They see billboards. They hear their neighbors use it. There's just a lot of pressure," Taylor says.

Aguilar has been trying natural methods of pest control, including a manure and mud spray on the large farms in southern Guatemala. But his neighbors and wife, Casimira, admonish him to farm the "modern way" — with pesticides.

Earlier this year, snow peas from Aguilar's cooperative were rejected by the United States because they had evidence of illegal pesticides when tested in Miami.

It's no wonder that Aguilar feels buffeted by collisions. The snow peas means that besides health risks from pesticides, people may be unable to sell what they grow.

Nonetheless, Aguilar says, shaking his head, farmers in the cooperative are using some of the forbidden chemicals in even stronger concoctions. Why?

"Because the pesticides are there," he replies. "MONDAY: Involvement of the U.S. government and chemical companies."

## PESTICIDES

*"I don't know why I did it. I felt stress . . . The paraquat? It was there, and I . . . I just took it."*

## PROMISE &amp; PERIL

*"Sometimes, they get better for awhile. But usually, we send them home to die."*

## Third World Solution To Life's Pain: Suicide By Pesticide

By Bill Lambrecht

Post-Dispatch Washington Bureau  
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MAZATENANGO, Guatemala — Four hours ago, Oscar Lopez Calderon, 17, gave in to depression. He drank paraquat, a potent pesticide, and he died. In the suicides of thousands of farmers in developing nations, the paraquat is a silver of Guatemala's southern coastal plain village, 40 miles away where they grow corn and sesame on a sliver of Guatemala's southern coastal plain.

Oscar whispers from his bed. "I don't know why I did it. I felt stress," he murmurs in Spanish.

He pushes with his right hand at his burning stomach. "The paraquat? It was there, and I . . . I just took it," he says.

That morning, from the same yard with its peeling green paint and open windows, doctors sent home another teen-age boy who had drunk paraquat. Across the hall, they released a 15-year-old girl poisoned accidentally when she drank from a bowl used to mix paraquat.

"Sometimes, they get better for awhile. But usually, we send them home to die," says Elva Sanchez, a nurse.

Oscar and the others are part of an epidemic of suicide by pesticide, say health professionals. World Health Organization officials estimate that 2 million people around the world purposely ingest pesticides each year in undeveloped countries. About 200,000 die.

Just one mouthful of paraquat is enough to kill those who ingest it. The pesticide is absorbed by the lungs, damaging the esophagus, stomach, liver and intestines, the lungs.

Oscar tells a reporter he drank a half-pint. "I was young and strong, but . . . he was too old."

Two months after the poisoning, Oscar barely clings to life after being moved in another hospital and then his home. "I'm in a lamentable state," Sanchez says.

In poor countries around the world, pesticides have become the instrument of choice for people wanting to die. Then, they're sent for paraquat, made by British-owned Zeneca Ltd. and by several other companies.

In Guatemala, friends of recent victims in the farming



Thomas Long

Depressed, Oscar Lopez Calderon, 17, drank a half-pint of paraquat. Two months later, he is at home and is described by a nurse as in a "lamentable condition."

■ A 37-year-old man was threatened with charges after accusing a woman while drinking. Rather than embarrass his family, he sipped pale, yellow paraquat and died.

■ A 30-year-old man suspected his wife of an affair. He reached for a bottle of insecticide and didn't live to find out for sure.

■ Grieving parents believe that "boyfriend problems" in the public hospital in nearby Retalhuleu, nurse Altra Ramirez points to Jeremiah Santos, 18. He is lying with an intravenous hook-up, staring blankly through a door into

A few days before, Santos says, he had a fight with his wife. Despairing, he drank paraquat. From the bed next to him, Baldomero Tarsacena interrupts to tell how his cousin died from drinking paraquat earlier this year.

Patricia Mozon Marroquin, the chief nurse, says that she doesn't understand why paraquat poisonings are increasing.

Nurse Ramirez interrupts. "We don't have the medicine we need or the equipment to care for these people." She disputes those who say that the sole problem with paraquat is suicide.

"Many of the problems we see are mistakes, people thinking they are drinking [sugar] cane liquor," she says.

Most poisons have antidotes. Not paraquat. Treatment for paraquat poisonings seems medieval: cans of what amounts to sterilized dirt, which are supposed to soak up the chemicals in the stomach.

Last spring, two Stanford University researchers working with counterparts in Mexico documented 25 paraquat poisonings in the Mexican state of Chiapas, which borders Guatemala. Without an antidote, 16 died.

They found similarities in the cases. Most victims lived in the same area. Most got the chemical from friends, not stores. Many were drinking or drunk.

Paraquat is a popular, effective and expensive herbicide used in many countries, the United States included. Much of the paraquat used in Central America today is manufactured in Bayport, Texas, by Zeneca. In June and July alone, Zeneca sent at least 247,000 pounds of paraquat to Guatemala, shipping records show.

"Suicides have given us a bad name," observes George Allen, a Zeneca representative in Latin America.

To discourage people from drinking paraquat, Allen says, Zeneca has added an unpleasant odor and made it blue instead of color-colored.

"The company really regrets what has happened. But we also regret that a person found it necessary to tragically end his life," Allen says.

The company continues to advertise paraquat. One ad reads: "Paraquat and 'Nature Working in Perfect



## In Guatemala, Attempts At Pesticide Education Collide With Machismo

By Bill Lambrecht

Post-Dispatch Washington Bureau  
• 1983 St. Louis Post-Dispatch

**EL CARMEN, Guatemala** — All the villagers, including their 50 children, are gathered in the morning mist outside an old stone church to a meeting that could save their lives: beneath a crude drawing of a skull and crossbones, they are being told about the dangers of pesticides and learning ways to prevent chemical injuries, says Anna Maria de Orellana, from the government agriculture ministry, when they mix or spray pesticides.

Later, another farm adviser (troops through the rain with the children to a newly dug hole on a hillside, where about 200 used pesticide bottles will be buried. This exercise teaches ways to dispose of old containers, sometimes the cause of accidental poisonings.

Health professionals who treat farm workers in developing countries say that these safe-use programs are the best answer — perhaps the only answer — if farmers are to be dependent on chemicals.

But safe-use programs are rare. An international group of chemical companies that goes by the name GIFAP lured in \$1.2 million in 1981 for three pilot projects: this one in Guatemala and others in Thailand and Kenya.

These projects are due to expire next summer, and the chemical companies have not yet determined how or where, to continue them. Claude Pretot, director of the GIFAP pilot project, said from Brussels that he has calculated that it cost about \$1 to educate a farmer. He is searching for money from the World Bank, the U.S. Agency for International Development and other sources to expand the program.

These programs have potential but have had little effect. Part of that has to do with ignorance, part with the burden of



Farmers in the village of El Carmen in the Guatemalan highlands examining a poster telling them about the dangers of pesticides.

wearing gloves and awkward equipment in a tropical climate and part with Latin American machismo.

The problem shows up one morning near the Guatemalan town of Sumpango, 20 brothers Edwin and Melvin Quaque, 15 and 13, prepare to mix three dangerous pesticides without protective gear.

Asked why they took no precautions, the boys say they don't need to. "We have no problems," says Melvin, with bravado in his voice.

## Some People Poison Waterways, Then Eat Or Sell Fish That Die

By Bill Lambrecht

Post-Dispatch Washington Bureau  
• 1983 St. Louis Post-Dispatch

**LA CEIBA, Honduras** — Along the San Juan Lopez River in northern Honduras, the word is out on a new way to fish.

People dump pesticides in the water and then scoop up dead and dying fish that float to the surface. Later, they sell them along the roads.

"When it comes to pesticides, there are no controls here," says Carlos Medina, a carpenter and a member of the Honduran Ecological Association.

Fishing with pesticides may seem far-fetched. But it is a frequent occurrence and a prime example of the abuse of farm chemicals among poor people in the developing world.

Last August, reports of pesticide fishing have caused government officials or environmental groups in two of Honduras, in El Salvador and in Costa Rica, Llaneros, in Ghana, a West African country, people fished during the 1980s in Lake Volta with strong pesticides that had been provided by the government for growing cocoa. Many stopped after a campaign to teach them the dangers.

This practice is a double-barreled abuse: it poisons the water and produces contaminated fish.

A Guatemalan woman died after eating

fish caught with pesticides, health officials from the town of Poputan wrote in a letter to the U.S. Senate last year.

Researchers say this practice stems both from ignorance and from fascination with chemicals from industrialized countries. Killing fish with farm chemicals seems to many people a reasonable alternative to stunting them with a paste made from plants.

Fishing isn't the only unusual misuse of pesticides in developing countries. Researchers have also found that:

■ People in the Peten region of Guatemala became seriously ill after using parquat, a toxic herbicide, to treat toothaches and warts.

■ A man in northern Guatemala died after using so insecticide to treat sores caused by fly bites.

■ People commonly use plastic pesticide bottles as containers for water, milk and coffee.

Dr. Robert McConnell of Mount Sinai Hospital in New York, who has studied pesticides effects in developing countries, says he knows of cases where people have been hurt from using pesticides as containers and as insect repellents.

"It really is just ignorance," McConnell says.

# U.S. Agencies Wearing Blinders On Pesticide Exports

10/25/73

By Bill Lambrecht

Post-Dispatch Washington Bureau  
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WASHINGTON — When Veliscol Chemicals Inc. of Illinois ships pesticides banned in the United States to Brazil or Singapore, the U.S. government has surprisingly little to say about it.

In June and July alone, Veliscol exported more than 500,000 pounds of chlordane and heptachlor, two chemicals believed to cause cancer in humans.

But the U.S. government wears legal blinders to the trade in dangerous pesticides. The Environmental Protection Agency says it doesn't know the amount of such illegal pesticides that are shipped abroad.

And don't bother asking the U.S. Customs Service. "We don't even keep a list," a Customs official remarks. "We don't keep track of who's exporting what."

Customs allows exporters to shield their names and precisely what is being sent. Montano Co. and Du Pont Agricultural Products are among the big companies that request secrecy, even when sending pesticides approved for use in the United States.

In short, U.S. companies can ship any pesticide they want without U.S. government interference. Chemical companies maintain that most of the exported chemicals can be used safely. But the U.S. government's hands-off approach troubles doctors and nurses in nations, where a rising number of poisonings are being reported.

"I say there is double guilt here for what is going on: guilt for those who send some of these pesticides to our country and guilt for those who allow it," asserts Dr. Gustavo Araya of LaCelia, Honduras, supervising physician for his area.

## Pesticide Triangle

On a blackboard in his office, Roberto Castro

sketches a triangle of pesticide shipments that starts in the United States, passes through Colombia and ends in his country, Costa Rica.

Castro, director of pesticide registration in Costa Rica, complains about the difficulty of monitoring pesticides that follow this roundabout route. The U.S. government itself loses track of these shipments because it only requires companies to list the final destination on shipping forms.

Castro is one of the health experts in developing countries who contend that the United States doesn't understand what happens when dangerous farm chemicals are shipped — how they are resold, repackaged and sometimes sold on a black

## PESTICIDE



## PROMISE & PERIL

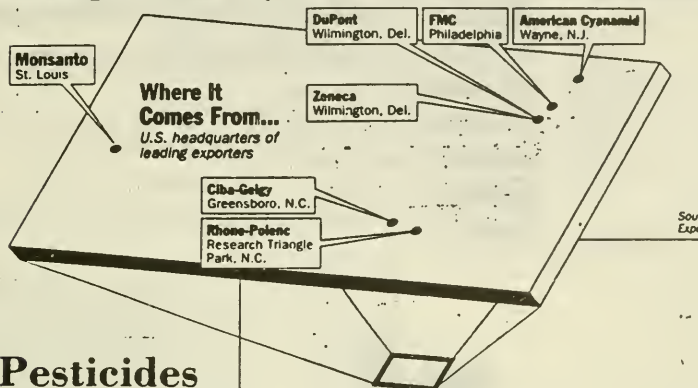
See PESTICIDES, Page 4



## PESTICIDES

'I say there is double guilt: for those who send these pesticides and for those who allow it.'

### Leading Pesticide Exporters And Some Of Their Customers



## Pesticides

From page one

market without instructions or warnings.

The result is that farm workers in developing countries spray the pesticides from knapsack containers, often without realizing the dangers.

The United States is the only industrialized nation to require notification of foreign countries when shipping a pesticide not approved for domestic use. But this notification is not accompanied by information about toxicity, health threats or environmental hazards.

Nor does the United States include information on less-toxic alternatives — even though people in developing countries say they would like to know about such options.

Kathleen Barnes, who heads EPA's pesticide export division, explains, "We don't have that kind of specific product information."

### 'Circle of Poison'

In 1990, the House and Senate passed so-called "Circle of Poison" legislation that would have curbed pesticide exports. But the legislation died in an eleventh-hour conference between the two chambers, amid objections by the chemical manufacturers.

This fall, President Bill Clinton's administration plans to introduce a new bill to regulate pesticide exports. But the Clinton bill, in its current form, does not go as far as the 1990 bill.

Like the earlier bill, it would prohibit the export of pesticides banned in the United States for health reasons or withdrawn by companies after serious health concerns arose.

But this might only apply to Velsicol's shipments of chlordane and heptachlor.

Under the current wording, Clinton's legislation would



Where It Go  
Nations indicated

have little effect on another group of at least 25 exported pesticides that can't be used in the United States. These are pesticides that are not registered for use in the United States because they have not passed the safety tests required by the EPA.

In some instances, chemical companies decide not to run the gamut of tests if the U.S. market for the product is small. In other cases, early health studies raise warning flags, so the firms decide not to pursue U.S. registration.

EPA sources estimate that about 1,000 shipments of unregistered chemicals were sent abroad last year.

A Post-Dispatch examination of the limited information

*This is one of an occasional series of reports based on a tour of farm regions in Latin America to investigate the use and abuse of farm chemicals. The study found that pesticide poisoning is widespread among farmers who don't use proper protection when using pesticides.*



## PROMISE & PERIL

**'If you don't have companies policing these products, you're going to have a disaster.'**

These are the estimated exports of leading pesticide exporters for June and July of this year and some of the countries importing their products.

<b>Monsanto</b>	Argentina, Brazil, China, Costa Rica, Guatemala, Panama, Thailand	<b>15 million pounds</b>
<b>Ciba-Geigy</b>	Australia, Brazil, Dominican Republic, South Africa	<b>10 million pounds</b>
<b>Rhone-Polenc</b>	Argentina, Brazil, Colombia, Costa Rica, Guatemala	<b>3.5 million pounds</b>
<b>Zeneca</b>	Brazil, Costa Rica, Guatemala, Honduras, Panama, South Africa	<b>3.1 million pounds</b>
<b>FMC</b>	Bangladesh, Brazil, Costa Rica, Guatemala, Honduras, Nicaragua	<b>3 million pounds</b>
<b>American Cyanamid</b>	Colombia, Ecuador, Philippines, Puerto Rico, Thailand, Venezuela	<b>2.6 million pounds</b>
<b>DuPont</b>	Brazil, Ecuador, Indonesia, New Zealand, Thailand, Venezuela	<b>2 million pounds</b>

Source: Port Import and Reporting Service



es...  
in black are importers of pesticides

available from U.S. Customs and EPA records found these recent examples of U.S. companies exporting unregistered chemicals.

■ On June 25, FMC Agricultural Corp. of Philadelphia sent 170,000 pounds of cadusafus — an insecticide for bananas — to Costa Rica.

■ Three times in July, FMC sent shipments of carbusulfan to Europe. FMC has failed for more than 10 years to win EPA registration of carbusulfan, partly because of fear of water pollution. Also, seven Nicaraguan workers were hospitalized in August 1992 after breathing fumes while mixing carbusulfan to spray on peanuts.

■ About 350,000 pounds of acetochlor — which was manufactured by Monsanto Co. and Zeneca Ltd. — was exported to Argentina last summer. Monsanto has shipped acetochlor to Costa Rica and Guatemala since last year. Acetochlor, a herbicide used on several crops, cannot be sold in the United States. Monsanto is currently seeking registration.

■ Monsanto also exports the rice herbicide butachlor to several countries, principally in Asia. Monsanto sought U.S. registration for butachlor in the late 1970s but

stopped after the EPA called for more studies. Monsanto says it decided that the potential market in the United States was too small to pursue registration.

### Dispute Overblown?

Chemical manufacturers contend that the dispute over unregistered pesticides is overblown because many times they are no more toxic than chemicals that are registered.

Fred Sutton, Monsanto's manager for Latin American operations, asserts that more government regulation of manufacturers is unnecessary and might backfire. The influence of Monsanto and others, he says, prevents problems that might stem from unscrupulous local suppliers.

"If you don't have companies of size and quality out of the U.S. and Europe policing these products, you're going to have a disaster on your hands," Sutton says.

Donna Jennings, spokeswoman for Veliscol, says that her company has tried to stop shipments to several countries where chlordane and heptachlor was misused.

"We believe that as long as overseas regulatory officials have the proper information and that we are doing all we can do as a company... then we should be able to continue to export," says Jennings.

William A. Galston, a top White House adviser on social policy, insisted during an interview that the administration "walked a considerable distance down the road" to solve the pesticide export problem.

Nonetheless, the Clinton proposal has angered those groups in Washington advocating more controls. "This proposal is a mere shadow of what Vice President Gore sponsored when he was in the Senate," asserts Sandra Marquardt, a pesticides expert with Greenpeace.

Unless Clinton agrees to changes before the bill is drafted, he may be competing in Congress with fellow Democrats who want a law with more teeth.

"This is even less than what the pesticide companies had agreed to" in 1990, said Rep. Mike Synar, D-Okla., who has been a leader in efforts to control pesticide exports.

If Synar can't persuade the administration to offer a stronger bill, he will introduce one himself.

## PESTICIDES



'You can't help people economically and then put their lives in danger. But it happened.'

# Project To Grow Exotic Crops Carries Threat

By Bill Lambrecht  
Post-Dispatch Washington Bureau  
• 1983, St. Louis Post-Dispatch

WASHINGTON

**A** U.S. FOREIGN AID program designed to help Central Americans help themselves may have put farmers at risk while falling short of its economic promise.

From broccoli and snow peas in the mountains of Guatemala to melons and mangos on the Costa Rican coast, farmers who once grew corn and traditional crops now raise these cash crops for export to the United States.

This transformed Central American countryside results from a policy of the U.S. Agency for International Development (AID) to promote non-traditional crops.

Based on numbers alone, the program has been a success. Agricultural exports to the United States have tripled to \$269 million a year since the mid-1980s.

But interviews in four Latin American countries with health professionals, social scientists and farmers themselves point to shortcomings.

Central American farmers reap a sliver of the profits from the new crops. Many still don't have enough to eat.

And the farmers face a heightened threat of pesticide poisoning from the chemicals used to yield blemish-free fruits and vegetables for American shoppers. In the last four years, shipments of pesticides to Central America nearly doubled, to 73 million pounds annually.

U.S. AID officials have begun to realize that their program may have caused problems.

"You can't help people economically and then put their lives in danger. But that's kind of how it happened," said John Acree, an AID official in Guatemala in charge of dealing with pesticide abuses in Central America.

In Washington, AID chief of staff Richard L. McCall said the program for non-traditional crops would be re-evaluated.

"What we've got to get a handle on, quite frankly, is whether this is [helping] small producers," McCall said.

AID's main program to promote these designer crops is carried out in the region by private consultants from Chemnics International, a subsidiary of Los Angeles-

based Ery Industries. Since 1986, the company has won contracts worth a total of \$15.3 million to promote non-traditional crops.

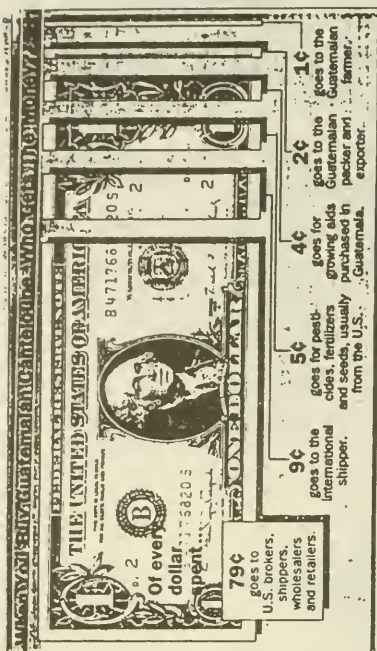
At their office in Guatemala City, the consultants indicate that their main worry about pesticides is U.S. rejection of shipments of

SOURCE: Department of Commerce

produce from Central America because of illegal residues. Dale Krigsvold, one of the consultants, pointedly questioned whether farm workers are poisoned as often as they claim. "I, personally, don't think there is a problem . . . They [poisonings] also happen in South Carolina," he said.

He suggested that some farmers were themselves at fault. "You can give them all the protective gear you can buy, and when you turn your back, it's gone," Krigsvold said, implying that it is stolen or just not used.

Health experts in the region counter that blaming farmers is no solution. These experts contend that the United States has failed to consider the effects of its programs. "AID doesn't make these human or environmental calculations," contends Dr. Catherina Weeseling, a physician and professor at Costa Rica's National University. She has studied pesticide poisonings.



### Roots Of A New Policy

The U.S. government's promotion of new crops in Central America has roots in the 1960s and 1970s, when it urged growers to add cotton, sugar and cattle to the region's staple crops of coffee and bananas. Pesticide

has always been a problem. But health experts say that the work associated with the cultivation of crops that require more sophisticated methods.

Under the Caribbean Basin Initiative in the 1980s, the United States stepped up its assistance of new crops based on the Reagan administration's belief that private enterprise was the best solution to Central America's problems.

Timothy G. Taylor, a University of Florida professor being paid by Chemonics to study the AID program, contends that it is fulfilling its promise.

"Before this program, there was a lot of boneheadedness in how we distributed aid," Taylor says. Benefits of the AID program do trickle down to small farmers, he said. For example, the program enabled a large farmer in Nicaragua to provide onion seeds and a market for eight small growers.

Anacore Garcia, a chemical company representative in Guatemala, also thinks the policy is working. "It's good for the country and good for the people. Many people who would be

growing corn and beans are now growing export crops and now earning more money for their lives."

Nonetheless, a 1992 study by the Guatemalan Association for the Advancement of the Social Sciences raises questions about who really benefits.

When a U.S. consumer pays \$1 for a juicy Guatemalan cantaloupe, only one penny goes to the Guatemalan farmer, according to the study, which was supported by the Ford Foundation and the MacArthur Foundation.

State Department studies performed for AID show that the region has made little headway in solving the fundamental problem of feeding itself, even though the amount of food exports from Central America has tripled in a decade.

Food produced per person declined in the 1980s in nearly every Central American country, according to studies. In every Central American country except Costa Rica, the average daily food intake was less than 2,300 calories — defined in U.S. food and law as a minimum for good health.

In the Dominican Republic, the effort to promote the non-traditional crops has faltered after early successes. Blame rests partly on pesticide overuse. Ten years ago, the Dominican Republic was the showcase for Caribbean Basin development. Its exports of Oriental vegetables, melons, tomatoes and other vegetables increased about 13 percent yearly.

But these exports have diminished because too many

illegal pesticides were showing up on foods exported to the United States and because the chemicals killed natural predators of the destructive white fly.

### Little Trickle Down?

Lori Ann Thuapp, an agriculture specialist at the not-for-profit World Resource Institute in Washington, says she has seen instances where farmers have made money from exports.

"People's hearts at AID may be in right place, but their program doesn't trickle down to the poor, and they are the people who suffer the health costs and the environmental costs."

Luis Sugranyes, an EPA employee assigned to work on pesticide problems in the region, is also critical. "In Central America, there is no reason in the world that they should use as many chemicals as they use."

Recently, AID has attempted to address the pesticide poisoning issue. It has spent about \$4 million to show farmers how to use pesticides safely, to show physicians how to better handle pesticide poisoning and to help clean up storehouses of leaking, outdated pesticides.

But that money is spent and there are no new funds. Meanwhile, Chemonics is pushing ahead with new ideas for new crops.



# Abandoned Chemicals Pollute Developing Countries

By Bill Lambrecht

Post-Dispatch Washington Bureau

• 1993, St. Louis Post-Dispatch

WASHINGTON — Pesticides cause problems not just when they're used carelessly but also when they're left lying around.

The United Nations Food and Agriculture Organization says that many developing countries have stocks of obsolete, outlawed or aban-

doned farm chemicals causing land and water pollution.

In the Bahamas island of Abaco, people have been worrying for 15 years about dozens of drums of herbicides left behind when Owens-Illinois Inc. the property in 1978. Some of the drums contain chemical relatives of Agent Orange, the herbicide used for defoliation in the Vietnam War.

John Hoff, spokesman for Owens-

Illinois, said that the company is working with the Bahamian government on a clean-up plan. "Frankly, we're kind of surprised and dismayed after all these years that this condition has been allowed to develop there," Hoff said.

In El Salvador, U.S. officials are trying to determine if they can help out with a similar situation near the airport at San Salvador where a

makeshift storehouse has drums of at least seven highly toxic chemicals.

Small countries often don't have the interest or money to get rid of pesticide dumps. A memorandum by an official of the Agency for International Development speaks to the difficulties the U.S. encounters: "There are currently no means available to direct the safe removal or destruction of the chemicals stored there."



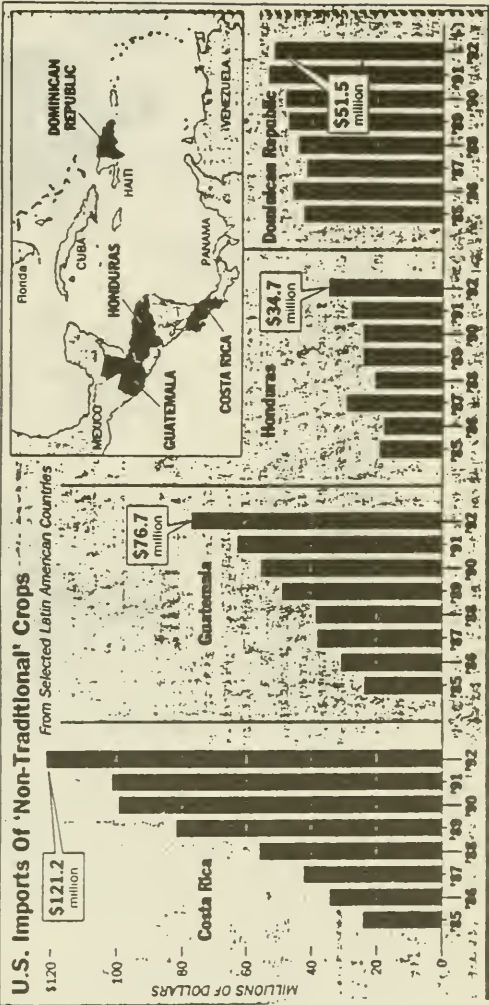
Thomas Long  
Melvin (left) and Edwin Quisque, 13 and 15, preparing to spray chemicals on bean fields in Sumpango, Guatemala. The teenagers say they don't need to wear protective clothing.

# NEWS ANALYSIS

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## PROMISE & PERIL

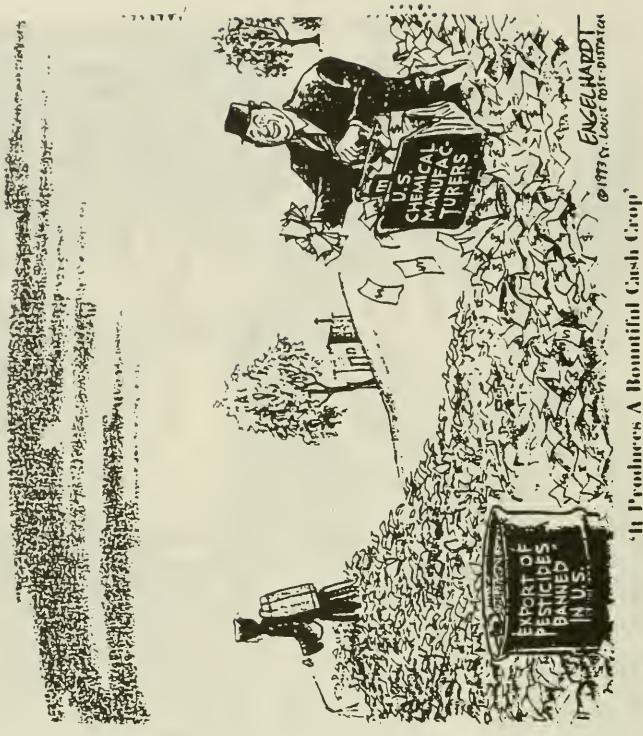
"Before this program, there was a lot of boneheadedness in how we distributed aid."



Tom Boraman/Post-Dispatch

ST LOUIS POST-DISPATCH

TUESDAY OCTOBER 26 1993



'It Produces A Bountiful Cash Crop'



10/20/73

ST. LOUIS POST-DISPATCH

## THE POST-DISPATCH PLATFORM

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# EDITORIALS

## Break The Circle Of Death

Central America has become the truck garden for many consumers in the United States who want fresh fruit, vegetables and flowers year round. The climate and soil are conducive to growing snow peas, broccoli, melons and decorative plants. Labor is cheap and plentiful. Speedy shipment by air in refrigerated containers makes these agricultural goods as close as the supermarket.

But as Bill Lambrecht of the *Post-Dispatch's* Washington bureau reported this week, the costs of such practices are staggering: deaths and illnesses for farm workers who frequently use pesticides made in the United States without proper clothing or equipment or even without understanding the deadly nature of the products they are spraying on crops.

The World Health Organization estimates that 25 million people are killed or injured by pesticides in the Third World. Many of those people live in Central America and earn meager livings farming vegetables, fruit and flowers for the U.S. market, where fresh agricultural products — so rare in winter a couple of decades ago — are plentiful no matter what the time of year.

Such a cornucopia is provided, in part, by American chemical manufacturers, which continue to produce and export pesticides that are banned in the United States often because they are known to

cause death, injury or illness either in farm workers or in people who eat or touch the products. Companies whose products cannot meet U.S. standards for safety should not ship them to Third World countries with weak rules. But American chemical manufacturers are always looking for markets, and they allege their products are safe and treated unfairly by bureaucrats and politicians.

Central American farm workers' lack of understanding of the lethal power of pesticides is little short of appalling. But in such countries as Guatemala, the government has taken little interest in effective regulation of this harmful product. So, paradoxically, powerless peasants die or become ill because they must raise crops in order to live.

Congress has a major role to play. It should revive its "circle of death" bills that would prohibit the sale of deadly and harmful pesticides abroad if they are banned in this country. Congress should conduct extensive hearings on the extent of the exports of pesticides and the harm they cause both to farm workers and people who eat or touch the products.

Finally, Congress should require the U.S. Customs Service to keep extensive records on the pesticides shipped out of the United States. This would help in tracing harmful pesticides sent abroad and provide foreign governments with useful information.

## LETTERS FROM THE PEOPLE

Time To Stop  
Misuse Of Pesticides

When I read the Oct. 25 edition, it broke my heart to see those young children spraying pesticides on fields in Guatemala. They look beautiful and healthy now, but the disease caused by exposure to pesticides like chlordane and heptachlor is an insidious one that only rears its ugly head after many years.

Velsicol was one of the companies mentioned in the article. It manufactures chlordane. In 1977, my son accepted a position at Velsicol in Marshall, Ill., as plant engineer. He resigned this position before the year was up because he felt something was very wrong there; things were not being done according to regulations. The plant was closed down shortly thereafter.

Once a year for five years after he left their employ, someone would call me inquiring as to the condition of his health.

In 1991, he was diagnosed with thyroid cancer and this year was found to have a rare form of malignant lymphoma. He is receiving very invasive treatment for this at M.D. Anderson Cancer Hospital in Houston. He is 41 years old.

I'm sure my son is just one of many victims of this exposure at Marshall, Ill. Velsicol should accept responsibility for these tragedies, and the manufacture of these pesticides should be banned.

We are, however, getting what we deserve. We ship these contaminants to foreign countries where they spray it on their crops and in turn ship these fruits and vegetables back to us for our consumption. We are even being encouraged to increase the amount of these particular foods in our daily diet.

What goes around comes around.

Bette Schmittgens  
St. Louis

It is painful to read about the suffering of farmers and their families related to the use and misuse of pesticides.

Who can comfortably eat an imported melon or banana while thinking about the person applying the pesticide, holding his breath against the stench, in ignorance of harm to come from overexposure, residues in discarded containers and drinking water contamination.

It doesn't have to happen. It wouldn't happen if everyone who cared bought any available organic (pesticide-free) fruits and vegetables in lieu of the standard variety (asking large grocery stores to carry them, but seeking out organic food sources until they do).

The vote of the consumers' dollar tells farmers what is desired: long-term healthy land and people or just cheap food.

Pamela Hunsler

# ST. LOUIS POST-DISPATCH

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SUNDAY, OCTOBER 31, 1993

(1)

FINAL 5-STAR

## Tainted Produce Slips Into U.S. Markets FDA Short On Workers, Clout And — To Critics — Will

By Bill Lambrecht

Post-Dispatch Staff Writer  
© 1993 St. Louis Post-Dispatch

WASHINGTON — An inspection in Da Lat last year on a load of Mexican vegetables gave new meaning to the phrase hot pepper.

Tests on green peppers found two forms of DDT, banned in the United States for 15 years, two more prohibited pesticides, a fifth pesticide that can be carcinogenic, and a chemical that resembles hydrochloric acid.

The peppers were one of more than 400 shipments of fruit and vegetables from Latin America between November 1991 and August 1993 that the Food and Drug Administration found to be tainted with illegal pesticides.

Despite the government inspections, tainted fruits and vegetables commonly make their way to grocery

shelves and dinner tables around the United States.

■ The FDA inspected just one percent of the 1.2 million shipments of food that enter the United States every year. And the frequency of those inspections is declining even as imports from foreign countries grow.

■ Tainted produce slips out of inspection stations because the FDA's testing process has loopholes.

These laws in the inspection system came to light in a 1992 report by the House of Representatives. The report said that the pesticide poisonings of Central American farmers

### PESTICIDES



### PROMISE & PERIL

of Medicine in New York, head of a panel convened by the National Academy of Sciences to study pesticides.

The federal government needs to get those kinds of data.

The National Academy of Sciences recommended in June that the U.S.

often from chemicals exported from the United States.

The chickens came in from the form of omelets and fruit and vegetables shipped to the United States.

■ We don't know whether these chemicals occur on one percent, five percent or 20 percent of the food imports, says Dr. Philip J. Landrigan of Mount Sinai School of Medicine.

Dr. Richard J. Jackson, part of the National Academy of Sciences pesticides panel, is critical of the FDA monitoring system as the "Tower of Babel" because of substantial com-

See PESTICIDES, Page 4

### INSIDE



■ Taint Chile. Pesticide-laden asparagus winds up at the Ritz. ■ Expert Advice. Wash or peel your fruits and vegetables.

## PESTICIDES

The FDA does 'not see any public health problem with produce coming into this country.'

### Pesticides

From page one

puter systems, poor record-keeping and general confusion, he said.

"Placing your trust in the FDA's monitoring of residues is a lot like standing in a downpour holding a teacup over your head; you have no way of capturing all that's coming at you," said Jackson, who is chief of communicable disease control for the state of California.

#### Ways Around the Law

An FDA finding that produce is tainted with illegal pesticides often does not stop the shipment from reaching domestic markets.

When produce is stopped at a port, the FDA's policy is to leave it in the custody of the importer while samples are tested. If illegal pesticides turn up, the importer is prohibited from selling the fruits or vegetables.

But importers frequently ship their produce to U.S. markets without waiting for clearance, say port officials and government investigators.

The General Accounting Office — the investigative arm of Congress — reported last year that more than one-third of 989 pesticide-tainted shipments it studied were illegally sold to the U.S. public.

The reason that importers can flout the FDA policy is that the agency's penalties are weak.

Importers who sell tainted produce forfeit a bond posted with the U.S. Customs Service that is equivalent to the value of the produce in the shipping country. For instance, snow peas imported from Central America may have a value of 15 cents a pound. So an importer bringing in 80,000 pounds would post a bond of \$12,000.

But those 80,000 pounds of snow peas would sell in U.S. markets for more than \$1 a pound, or at least \$80,000. So even if the FDA assessed the maximum penalty of triple the bond — or \$36,000 — the importer stands to make \$44,000.

The amount of times we catch an importer is rare, and when we do, they're still making money," says Edward T. Warner, director of the FDA's district office in New York. Warner says he is pushing to institute criminal penalties at the New York port.

The General Accounting Office has criticized the FDA policy three times in recent years, with no effect.

"I can't believe that they continue to say there's not a problem," says J. Kevin Donohue, GAO assistant director. "With adulterated food coming into this country, sooner or later we're going to have a major problem or a major scare."

Dykstra, the FDA deputy associate commissioner, says the agency doesn't plan to change its policy. It would be hard to assess penalties that match the threat to public health, he says.

Nonetheless, he added that the FDA had begun looking more closely at importers he described as "bad actors."

#### Imports Surge, Inspections Lag

While fruit and vegetable imports increase steadily, FDA inspections decline.

Between 25 and 40 percent of the fruits and vegetables that Americans put on their tables are imported — most from Latin America. In the winter, the figure jumps to about 50 percent.

From Central America, imports of broccoli, snow peas, melons, exotic fruits and other so-called "non-traditional" crops have tripled since 1987, to a value of \$269 million a year when they cross the border.

From Mexico, U.S. imports of tomatoes, peppers and other produce have skyrocketed to \$1.2 billion a year. More shipments



Yet the overall frequency of FDA inspections of imported food declined in 1992 for the second straight year — to 16,428, from 19,082 in 1991, according to FDA reports. That was a reduction of 13 percent and the lowest frequency of inspections since 1987. The number of inspectors — 1,600 — has remained the same since 1991, and no increase has planned.

### Long-Term Risks Unknown

FDA officials do not consider pesticide contamination a major health risk because many of the shipments they seize contain pesticides commonly used in the United States. The reason the shipments are seized is that the pesticide has been discovered on fruits or vegetables on which it can't be used in the United States.

For instance, several times last spring, the FDA found levels of a chemical called methamidophos on Mexican strawberries. Methamidophos is a strong pesticide that kills cut worms, mites, white flies and other insects. Miles Inc. of Kansas City is among several companies that make it.

The EPA has permitted small amounts of methamidophos on tomatoes, cabbage and several other vegetables. But it has not yet found the pesticide safe for strawberries.

Some of the pesticide residues found by FDA inspections are of more powerful pesticides, including ones banned in the United States. A Post-Dispatch examination of FDA records found that:

■ Last March, inspectors looking at Costa Rican canteoupes

*Pesticides shipped from the U.S. routinely are misused in Latin America and other countries. Residues often come back on imported produce. Part of a continuing series.*

arriving in Philadelphia detected heptachlor — a U.S.-made pesticide banned in this country but legally shipped abroad by Velsicol Chemical Corp. of Rosemont, Ill.

■ In the past two years, heptachlor also turned up on carrots from Mexico and on squash from Costa Rica and Guatemala.

■ Last year, a crate of serrano peppers inspected in Dallas had seven different kinds of pesticides, including parathion, a extremely toxic insect-killer classified as a potential human cancer-causer.

■ Since late 1991, the FDA discovered the pesticide endosulfan more than 60 times on 25 fruits and vegetables imported from six Latin American countries. Endosulfan contains estrogen, a hormone under scrutiny as a potential cause of breast cancer.

Consumers eating tainted fruits and vegetables aren't going to experience the poisonings suffered by farm workers using pesticides. The amounts of pesticides on produce are small.

"Inasmuch as we take airplanes and cross busy streets, we do things that are far riskier and accept them without a second thought," observes Dr. Ronald E. Kleinman, a pediatrician at Massachusetts General Hospital.

But nobody is able to say for sure if there are long-term problems from ingesting pesticides. Because of the unknowns, some experts believe the FDA ought to beef up its food monitoring.

For instance, some critics believe that the government should require food importers to present a record of pesticides sprayed on the product and should pay for testing.

Dr. Antonio Velasco, a pesticides authority from California, asserts that the "vulnerability of children" should prompt the FDA to do a better job.

"They can't stop every truck, but the FDA ought to be inspecting more produce, not less, and getting ready for a lot more pesticide residues from Mexico coming back at us under NAFTA," Velasco said.

## Importers Thumb Noses At The FDA

By Bill Lambrecht

Post-Dispatch Washington Bureau  
• 1982, St. Louis Post-Dispatch

WASHINGTON — The South American vegetables were tender but tainted, yet they made it to the Rita.

When imported vegetables are found to be covered with illegal pesticides, they are supposed to be destroyed. "You can't send in a pesticide vacuum cleaner," remarks Catherine Carnevale, an official with the Food and Drug Administration.

But tainted shipments routinely slip by. That's how 250 cases of asparagus contaminated with an illegal pesticide reached supermarkets and restaurants around the United States — including the Rita Carlton in Atlanta.

Hilcrest Sales of Medley, Fla., imported the asparagus from Argentina. The shipment arrived at the Miami Airport on Oct. 9, 1981, and the FDA randomly chose it for inspection. FDA sent a sample to its lab in Atlanta for testing.

The test found heptachlor, an extremely toxic insecticide made by Velsicol Chemical Corp. of Rosemont, Ill. In the 1970s, tests showed that heptachlor caused cancer in lab animals. In 1978, the substance was barred for use in U.S. farming.

But Velsicol still exports heptachlor around the world, and the U.S. government does nothing to stop it.

While the FDA's Atlanta lab was conducting its scientific tests on the asparagus, Hilcrest retained custody of the test of the shipment, in line with FDA policy. When FDA notified Hilcrest of its heptachlor finding, the company ignored the notification and sent the vegetables to market.

Importers of contaminated produce often ignore FDA warnings because the penalties for violating the law are less than the money they make selling the produce.

To them, it's a cost of doing business, often an incidental cost, observes J. Kevin Donohue, assistant director of the General Accounting Office.

Hilcrest officials were unavailable for comment.

After letting tainted produce slip through the net, the FDA seldom tracks it down. The agency did so in this case, however, under pressure from the House Foreign Affairs Committee. Here's what the agency found.

Hilcrest shipped the asparagus to distributors in Florida, Georgia and Pennsylvania. Those distributors sold it in Pittsburgh, Philadelphia and Atlanta.

In Atlanta, seven cases of the asparagus were sold to the Atlanta Hilton and Towers and one case ended up at the Rita Carlton Hotel — two fancy hotels within blocks of the FDA testing lab.

## Washing, Peeling Can Trim Risk From Pesticides

By Bill Lambrecht

Post-Dispatch Washington Bureau  
• 1982, St. Louis Post-Dispatch

WASHINGTON — Amid warnings to watch out for pesticides on produce, the National Cancer Institute recommends eating five servings of fruit and vegetables each day for good health.

How do you do both? The Food and Drug Administration says:

• Wash produce with large amounts of cold or warm tap water and scrub with a brush if possible. Do not use soap.

• Throw away the outer leaves of leafy vegetables and remove skins of food when you can.

In St. Louis area supermarkets, some produce is cleaned before it is sold to make it look appealing. But produce handlers say they don't have time to wash everything.

Mike Roberts, produce manager for Supervalu, which provides vegetables and fruits to several local chains, says that distributors rely on the integrity of shippers and on government inspection procedures.

Says Sue Kunatmann of Schnucks Markets: "We're very careful who we buy any of our products from."











Richard Wiles, a pesticides expert in Washington, says that some pesticides bind to the surface of produce and others travel through the roots and become absorbed into the plant.

But Wiles adds: "Your mother was right when she said wash your fruits and vegetables."



## PROMISE & PERIL

'I can't believe that they continue to say there's not a problem.'

Shipments Tainted With Pesticides							
Pesticide violations found by the FDA on Latin American produce bound for U.S. supermarkets and restaurants.							
	CONTAMINANTS	COUNTRY	GROWN	TESTED	DATE	MANUFACTURER	NOTES
	Artichoke	Captan	Chile	Baltimore	Dec. '92	Several chemical firms	The EPA has prohibited the sale or distribution of captan in the U.S. for many years since 1989. High levels of captan were found in several shipments of artichokes before Christmas.
	Asparagus	Chlordane, Heptachlor, Permethrin	Argentina	Atlanta	Nov. '91	Velsicol Chemical Corp. of Rosemont, Ill., makes chlordane and heptachlor. Heptachlor exports are in the millions of pounds per year. Numerous firms make permethrin.	Chlordane and heptachlor have been prohibited in farming in the U.S. for 15 years because they are believed as probable human cancer-causers. Permethrin is a widely used insecticide for household vermin and agricultural pests.
	Cantaloupe	Methamidophos	Honduras	Atlanta	Feb. '93	Miles Inc. of Kansas City and several other companies.	Widely used insecticide that can harm the nervous system if abused.
	Carrots	Heptachlor	Mexico	Dallas	Oct. '92	Velsicol	Heptachlor is a potent neurotoxin.
	Cocoa beans	DDT, Malathion	Ecuador	San Juan	June '92	No manufacturer makes DDT in the U.S.	DDT is probable cancer-causer in humans and has been banned since 1972.
	Hot pepper	Parathion, Azoxphos, Methamidophos, Azinphos, Monocrotophos.	Mexico	Dallas	April '92	Numerous	This crate of serrano peppers had residues from seven pesticides, one of which the EPA couldn't identify.
	Limes	Fenitrothion	Honduras	Atlanta	March '92	Numerous	Fenitrothion is a bug-killer that breaks down in the environment rapidly but is toxic to people.
	Snow peas	Chlorothalinal	Guatemala	Atlanta	Feb. '92	ISKI Biotech Corp. of Ohio sells chlorothalinal as Bravo.	Pesticide residues on Guatemala's snow peas have crippled exports.
	Strawberries	Captan, Cypermethrin, Vinclozolin	Colombia	Atlanta	Nov. '91	Numerous	Captan is an animal cancer-causer banned for use on many fruit and vegetables in the U.S.
	Tomatoes	Heptachlor	Costa Rica	Atlanta	April '93	Velsicol	Banned for farming. The only U.S. use permitted is to kill fire ants around electric transformers.

Source: Food and Drug Administration inspection reports.

Each entry lists the chemical residues, does not establish which chemical company manufactured the pesticide.

Source: Food and Drug Administration inspection results.

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FINAL 5-STAR

## Farm Chemical Robs Couples Of Their Dreams

By Bill Lambrecht  
Post-Dispatch Washington Bureau  
1993 St. Louis Post-Dispatch 7A

LA CEIBA, Honduras — One by one, the men whisper of unfulfilled lives, of children never born, of marriages broken. Murilo de La Cruz wondered for years why his wife didn't get pregnant. Felipe Armandon Reyes couldn't understand why, at age 34, he was afflicted

by sexual problems. "I would feel bad, and my wife would feel bad, too," he said.

The Hondurans are among thousands of Central American farm workers who suffer sterility and other disorders from working with a pesticide called DBCP.

The Post-Dispatch has reported on the acute poisonings and immediate sicknesses caused by the use and abuse of pesticides in developing countries. But much less is known about the long-term dangers of farm chemicals.

DBCP is an "exception. It provides a case study of the devastating long-term

■ Banana worker who settled says now he should have sued

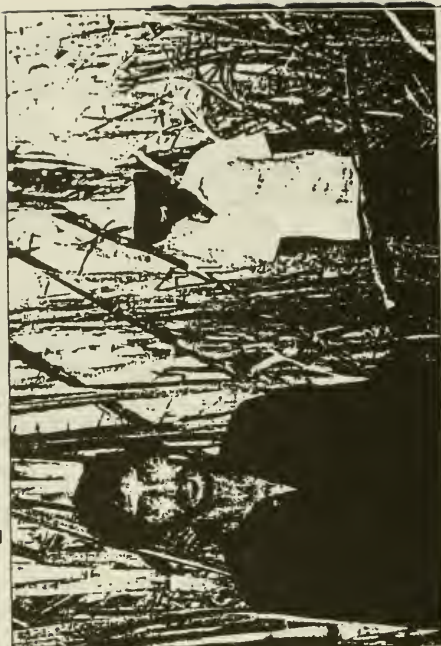
effects of a chemical that once worked wonders killing the microscopic worms that damage the roots of banana trees.

Today the chemical companies that manufactured DBCP and the fruit companies that used it face lawsuits from thousands of farm workers for not having reacted quickly enough to warning signs.

Dow Chemical Co. and Shell Oil Co., which made and exported the chemical, discounted early studies showing that the chemical caused sterility in lab animals. In Central America, Standard Fruit Co. continued to have its plantation workers apply the chemical well after strong evidence showed that it caused sterility in humans.

So far, companies have paid millions of dollars in compensation to victims. Yet the toll of DBCP's victims is still being

See PESTICIDES, Page 7



Bill Lambrecht/Post-Dispatch  
Juan Nunez, right, stands with a fellow farm worker among sugar cane at a banana plantation near Olanchito, Honduras. Both say they have suffered from exposure to DBCP.

### PESTICIDES



### PROMISE & PERIL



SUNDAY NOVEMBER 14, 1993

## PESTICIDES

### Pesticides

From page one

tallied today, more than a decade after the last applications of the chemical.

Around the Central American banana plantations of Standard Fruit, *los afectados* — the affected ones — arrive at clinics for sperm counts in hopes of gathering proof to make legal claims.

In Texas, where the chemical companies operate, lawyers are preparing their defense against the latest suits.

In late August, about 16,000 workers filed suit in Texas, said Charles Siegel, a lawyer representing the workers. Most of these cases originated in Central America. Workers from the Caribbean, Africa, South America and the Philippines also filed suits.

Meanwhile, the companies are trying to protect themselves from more lawsuits. In Honduras, Standard Fruit is offering money to plantation workers — often thousands of dollars — to sign agreements never to sue.

In the town of La Ceiba, one former banana worker who says he suffers from DBCP's familiar symptoms looks at one of the agreements. Signing it will bring him money immediately, and he may do it.

This man's problems are not so serious as some men's are; his sperm count had not plunged so low as others' have. Printed on the agreement is the amount he will get by agreeing not to seek damages: 800 lempiras, the equivalent of about \$135.

#### Scientist's Warnings Ignored

When it was developed in the 1950s, DBCP — dibromochloropropane — was hailed as one of most effective new farm chemicals.

Manufacturers knew from early testing that even low doses seriously affected lab animals, according to documents released years later. In rats, the chemical damaged the testes.

A toxicologist for Dow recommended in a trade journal in 1961 that workers applying DBCP wear full-face gas masks and clothing that the chemical couldn't penetrate.

But when the U.S. government gave the go-ahead in 1964 to begin selling DBCP, it did not require those warnings on the labels. Instead, the warning instructed workers to avoid breathing vapors, to use DBCP in well-ventilated areas and to keep it away from skin and eyes.

In tests in Central America, Standard Fruit found DBCP the most effective chemical known in killing worms that eat the roots of banana plants. The company — part of Dole Food Co. — started using it heavily in 1970.

Most pesticides are sprayed. DBCP was injected directly in the ground by hand held machines that looked like plungers.

Former banana plantation workers interviewed by the Post-Dispatch in Costa Rica

and Honduras said they had had no idea of the dangers and been given no warnings about the need for protective clothing when mixing or applying DBCP.

#### Sterility Is Discovered

In 1977, the first cases of sterility were diagnosed separately, thousands of miles apart, by doctors in Costa Rica and in California.

In the United States, the discovery that more than 30 workers at a chemical plant in Lathrop, Calif., had become sterile triggered swift action. California banned DBCP in August 1977. The next month, the U.S. Environmental Protection Agency suspended DBCP for most uses, saying that it produced cancer in lab animals and "may cause sterility in men."

Shell and Dow stopped making and exporting DBCP and told customers of problems. But Standard Fruit continued using DBCP made in other countries and pressured Dow to live up to its contract to ship more of the chemical it had on hand.

Dow agreed to begin exporting DBCP

again, provided that safety equipment was used. Exports continued until late 1978, more than a year after it had been banned in the United States.

In 1979, with diagnoses of sterility and low sperm count mounting in Costa Rica, that country's government pressured Standard Fruit to stop using the chemical, which it then was buying from non-U.S. sources.

But instead of destroying the DBCP, the company sent more than 180,000 liters from its Costa Rican storehouses to Honduras for use in plantations there, according to internal company documents cited in the International Journal of Health Services.

Manufacturers of DBCP insist that they did nothing that violated U.S. law.

"All containers shipped out from Dow facilities had government approved safety and use labels that were printed in Spanish and English," says Dow spokesman Scott Wheeler.

Mike Sternesky, a spokesman for Shell, notes that DBCP was registered with the U.S. government while it was sold by Shell and that toxicology test results had been submitted to the government before registration.

Both manufacturers contend that had workers followed warning labels, they would not have suffered problems. Dole Food declines to comment on the pending lawsuits, and none of the companies will discuss settlements.

"We always feel for people who are injured in any situation, particularly when our products are involved," Shell's Sternesky says.

The men from the banana plantations say

**Manufacturers knew that even low doses affected lab animals, according to documents.**



## PROMISE & PERIL

that the sum total of their injuries can't be measured in a doctor's office.

In a machismo culture where large families are valued, the inability of men to father children can be deeply distressing.

Doctors call DBCP a testicular toxin. Many men become completely sterile from it, and some suffer from impotence that doctors say is often due to emotional and psychological problems resulting from the inability to father children.

DBCP victims tell of being taunted by other men, of being left by their wives, of turning to alcohol.

Cornelio Hernandez, 54, of Honduras says that after his problems surfaced at age 40, he lived in constant fear that his wife, Maria, would leave him. She stayed.

Another man, 48, pointed to his head when speaking of his affliction. "All these years, I have only been able to have a little bit of relations with my wife. It is hard on you up here."

In Texas last year, about 1,000 Central American workers agreed to a \$20 million out-of-court settlement, say lawyers involved in the case. That amounts to an average of \$20,000 each for their injuries.

But finding a courtroom is getting harder.

Costa Ricans don't bother filing cases in their own country. Segel, the lawyer from Texas, contends that a Costa Rican judge would be unlikely to award more than \$2,000 for a stipid case. By contrast, families of five workers in the Lathrop, Calif., chemical plant received a total of \$4.9 million in 1983 in a settlement in a U.S. court.

For these reasons, Central American workers try to file suit in the United States.

Lawyers have argued for nearly a decade about whether they should be able to file in Texas. The Central American workers contend that they should have the right to file suit in Texas when the target company has its headquarters or a large operation there.

Shell has its headquarters in Houston, and Dow has one of the nation's largest chemical plants 60 miles away.

The companies disagree, pointing to the legal doctrine of *forum non conveniens* — a Latin phrase meaning that the forum is inconvenient. Federal courts, confronted by a growing number of multinational lawsuits, began invoking the doctrine in the mid-1970s, and it was endorsed by the U.S. Supreme Court.

But in 1990 the Texas Supreme Court upheld the DBCP workers' right to sue in state court. Justice Lloyd Doggett explained that the victims "were employed by an American company on American-owned land and

# One Worker's Conclusion: Settling Case Was Mistake

By Bill Lambrecht

Post-Dispatch Washington Bureau  
\* 1992, St. Louis Post-Dispatch

VICTORIA, Costa Rica — Luis Chavez worries that in one weak moment, he traded away justice for \$2,500.

Chavez is among thousands of Central American banana workers who have accepted settlements for sterility and injuries suffered from working with the pesticide DBCP.

Sixteen months after taking the money, Chavez believes he made a mistake. He wishes that that he would have pursued his lawsuit or at least held out for more money.

He feels wronged by companies that made DBCP, wronged by plantation managers who ordered him to use it and wronged by lawyers who represented him.

"I got some money, but it didn't buy back my health," he says, speaking in his living room, where a plaque from Dole hangs from the plywood wall.

From 1972 until 1977, Chavez operated a hand-held injection machine that squirted the pesticide into the ground around banana plants at Standard Fruit & Kin Frit plantations.

He wore no protective clothing, and he recalls that the chemical soaked his pants. Some days, he jumped into the river to fight the stinging and the stench.

In 1977 — when Chavez was 40 — the last of his four children was born. Like others who worked with DBCP, Chavez wondered why his wife did not become pregnant after that. A doctor told him that he had very low sperm count.

"He gave me medicine, but nothing worked. Soon after, I started having my problem with impotence," Chavez says.

Chavez, now 56, says that 10 people he worked with suffered the same affliction. His next-door neighbor — bearded, 6 feet 10 inches tall and 240 pounds — also claims



Bill Lambrecht/Post-Dispatch

Luis Chavez, a former banana worker at a Standard Fruit Co. plantation in Costa Rica, says he suffers sterility and other problems from exposure to DBCP.

to suffer the symptoms and has filed a lawsuit.

Last year, Costa Rican lawyers persuaded Chavez to settle his case. Time was running out, he was told. He says he was one of 200 men who agreed to settlements in San Jose, the capital, one day in July 1992. He observes that his lawyer received \$1,000 out of a total award of \$3,500.

"Some lawyers make good business for themselves, but not for me," he says.

grew Dole bananas for export solely to American tables. The chemical was researched, formulated, tested, manufactured, labeled and shipped by an American company in the United States to another American company.

That legal victory for the workers was short-lived. The Texas Legislature passed a law last year making it easier for judges to throw out cases after Sept. 1. That law caused a rush of suits before the deadline.

Elena Fullerton, a Honduran who works with victims of pesticide injuries, estimates

that more than 2,000 Honduran men who had not sued have taken settlements recently. Many of these settlements range from \$500 to more than \$4,000.

The companies "are putting pressure on people, telling them that they can no longer sue in the United States," she says. Most of the settlements are too small to provide health care and other necessities, Fullerton says.

"For most of the men," she says, "the tiny amounts of money they are getting will be gone ... by Christmas."



## PROMISE & PERIL

produce to prevent the insect from entering the United States.

Now, the few Dominican vegetables that come from here must be soaked in hot water.

Some growers believe that pesticides wiped out a spider that controls the insect naturally. Others say the pest grew resistant to farm chemicals.

"When we used the pesticides, the plague got worse," says Argentina Cruz, an office worker at the plant.

### Barefoot Children

Although exports have plummeted, the Dominican appetite for pesticides remains strong.

Last year, the United States alone sent 2.5 million pounds of farm chemicals.

Labels on most pesticides call for protective gear — safety goggles, masks and rubber boots when applying the most dangerous pesticides, long-sleeve shirts and long pants for others.

On the road through the Constanza Valley, barefoot boys spray pesticides on tomatoes. This is not unusual.

In a study last year commissioned by the U.S. Agency for International Development, only one of 29 people observed spraying pesticides wore protection. Of the 29, 13 were children.

"None [of the children] was wearing protective equipment at the time of application," says the study. "All wore short pants and none was wearing shoes. Two of the children were using banned or restricted products."

Investigators found no protective gear sold in the more than 20 farm-chemical stores they checked.

The study — never published — was written by Alejandro E. Segarra-Carmona, now with AID in Washington. Landowners told Segarra-Carmona that they had trouble bringing protective equipment from Santo Domingo.

"I said to them, 'You got the chemicals here, didn't you?'"

Several chemical companies, among them Ciba-Geigy Ltd. and Zeneca Ltd., both European-owned, are donating money to teach farmers to use chemicals safely.

George Allen, Dominican representative for Zeneca — which makes paraquat, a banned herbicide — said that his company agreed to teach safety methods with the understanding that the agriculture ministry wouldn't enforce the ban.

Thomen, who heads the government environmental commission, insists that the ban remains in place for paraquat, a chemical sometimes used by farm workers to commit suicide.

Thomen said that because of corruption, other prohibited pesticides arrived "unofficially" at ports and could be



Bill Lambrecht/Post-Dispatch

**Antonio Thomen, head of a Dominican environmental commission, says a ban on some dangerous pesticides is not being enforced.**

bought at stores in the countryside. And pesticides unavailable in stores can be bought on the black market, AID officials say.

Impoverished countries seldom keep track of pesticide deaths. The Dominican Republic is no exception. Farm workers themselves keep lists. And at his office in La Vega, Luis Urena, the head of a local farm worker group, holds a list in his hand.

It has names of 14 farm workers who have died since last year. The names are written down alongside the chemical they worked with. All victims were men, most were in their 30s or 40s. Three killed themselves by ingesting a pesticide.

Urena is angry because plantation owners won't give workers protective equipment. Asked if he sees matters improving, Urena replies: "It's gotten worse."

# ST. LOUIS POST-DISPATCH

SUNDAY, NOVEMBER 29, 1983

(3)

FINAL 6-STAR

## Chemical Misuse Makes Land A 'Valley Of Death'

### PESTICIDES



### PROMISE & PERIL

By Bill Lambrecht

Pest Dispatch Washington Bureau

• 1983 St. Louis Post-Dispatch

CONSTANZA, Dominican Republic — This region's lush mountains and valleys with their bountiful plantations once stood as an agricultural showcase among developing countries.

Today, farmers call this land the "Valley of Death."

— Here's what a visitor encounters along the road to Constanza:

■ Crops covered with swarms of whorflies resistant to pesticides.

■ A vegetable packing plant that closed after exports to the United States became contaminated with

pesticides. ■ Police prevent doctor from testifying about pesticide dangers in Dominican Republic.

chemicals and pests became uncontrollable.

■ Stores of farm workers dying from pesticides. "We've about killed the goose that lays our golden eggs," says Antonio Thomen, director of the Dominican National Commission for the Environment.

Thomen tried the countryside checking on President Balaguer's ban on the use of pesticides. Emotions run so high on this issue that Thomen packs a pistol for protection.

The decree isn't working. Three farm stores visited by Thomen are selling paraquat, a much-abused herbicide included in the ban. It is one of several prohibited

chemicals still sold, Thomen says. "In our country, whoever has the money controls what goes on, not the government," Thomen says.

In the mid-1980s, Dominican agriculture was hailed as a model for the Caribbean. The U.S. Agency for International Development (AID) successfully promoted Dominican exports of melons, oriental vegetables and additional crops. The Dominican economy was growing.

Since then:

■ Shipments of tomatoes to the United States have declined to 2.5 million pounds in 1982 from over 17 million pounds in 1986, according to Department of Commerce records.

See PESTICIDES, Page 6



SA 11/22/93

## PESTICIDES

### Pesticides

From page one



Bill Lambrecht/Post-Dispatch

Dr. Ruben Marte says he is alarmed by levels of pesticides in people's blood.

### Produce Growers Stifled Doctor's Warnings, He Says

By Bill Lambrecht

Post-Dispatch Washington Bureau

\* 1993, St. Louis Post-Dispatch

SANTO DOMINGO, Dominican Republic — Dr. Ruben Marte never did tell the president his story.

The physician was dispatched by the Dominican Agriculture Ministry to look into abuse of pesticides in the Constanza Valley. Norming, he treated poisoning victims; afterwards, he conducted research.

In August 1987, President Joaquin Balaguer traveled to Constanza to hear first-hand why the country's richest farmland was being called the "Valley of Death."

Balaguer, tired of hearing about the pesticide problems, had threatened to close the valley for farming. In the Dominican Republic, the president has such power.

Marte was eager to tell what he had found: "alarming" levels of chemicals in peoples blood, pesticides in mothers' milk, contamination of the land.

He wanted to tell about 15-year-old boys working full-time with pesticides rather than going to school — boys who looked as if they were in their twenties rather than their teens.

But the president never heard from Marte. On the way to the public hearing, Marte was arrested by three local police officers.

"When we got to the jail, my wife was there and so were three technicians who were supposed to testify with me," Marte said.

All were held for 12 hours until the president was out of town.

The next day, the agriculture minister declared that the president had found no reason to worry during his trip to Constanza.

A few weeks later, Marte arrived home from work to find his belongings packed in a truck. Jars of tissue samples and valuable research were missing. He was escorted out of town.

Growers wanted him gone, Marte says.

Marte still works for the Ministry of Agriculture, but in the capital of Santo Domingo. He keeps an eye on farming in the Constanza Valley.

Farmers "still poison themselves with pesticides," he says.

"But instead of exporting the contaminated produce, we eat it in the Dominican Republic."

■ Cantaloupe shipments plunged to 11 million pounds a year from 34.5 million in the same period.

■ Lucrative exports of snowpeas, beans, cabbage and oriental vegetables dropped to zero.

#### A Pesticides Nightmare

What happened? Simply put, both the bugs and the bug-killers spun out of control.

Landowners and small farmers became enamored of the power of pesticides, spraying them heavily and regularly, not just when needed.

Douglas L. Murray, a sociologist from Colorado State University who has studied the problem, says that Dominican farmers found themselves on a pesticides treadmill. The farmers began using more pesticides because earlier pesticide applications had either killed the pests' predators or resulted in chemical-resistant bugs.

Illegal pesticides began showing up on Dominican produce exported to the United States. From 1989 to 1991, nearly half of the imports from the Dominican Republic had pesticide violations, according to U.S. government records.

Despite all the chemicals, pests flourished.

One farmer describes his experience with the whitefly: "For every one I killed with chemicals, a thousand of his brothers came to the funeral."

A U.S. AID official remarked that at its worst, the whitefly infestation "looked like an explosion in a talcum factory." Today the bugs coat the leaves of plants and swarm like gnats around produce at Dominican markets.

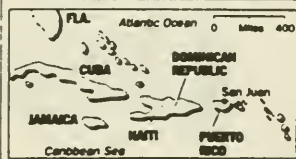
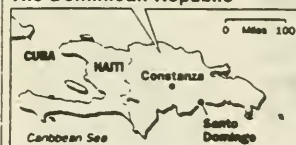
David Pimentel of Cornell University is an expert on insects and pesticides. He says that whitefly infestations worsen when the fly's natural predator — a tiny wasp — is wiped out by pesticides.

"Two things can happen — natural enemies can be destroyed or you can end up with pesticide-resistant whiteflies. Put the two together and you have a sad situation," Pimentel says.

Another insect problem has surfaced near the town of La Vega. There the gate is locked to the Exportadora Japonesa plant, which exported oriental vegetables to the United States. In nearby fields another fly — *Thrips palmi* — sucks the juices from plants.

At first, growers controlled the insect with pesticides. After a while, chemicals no longer worked; the bugs devoured vegetables before harvest. The U.S. Agriculture Department slapped a quarantine on Dominican

#### The Dominican Republic



Post-Dispatch map

# ST. LOUIS POST-DISPATCH

Copyright 1983, SUNDAY, DECEMBER 12, 1983

FINAL 8-STAR

## Crop Sprays Leave Residue Of Ailments

By Bill Lambrecht

Post-Dispatch Washington Bureau

WASHINGTON, Dec. 11 (AP) — Banana workers pile medical records and death notices on a table in the dirt.

On this steamy Sunday morning, 400 workers and relatives have crowded into a grove of grapefruit trees at a Standard Fruit Co. plantation to talk about living with pesticides.

### PESTICIDES

"It's a mess of nerve problems, skin rashes that don't heal, women carry ID cards of dead husbands and hide up children with deformities," says Lillian Iñiguez, 40, a worker. "That is all I want to know," cries Lillian Iñiguez. She raises the shirt of her little boy, Carlos, to show a spinal deformity.

The U.S. Environmental Protection Agency, which monitors pesticides in farm regions of developing countries, are asking whether pesticides pose a long-term health threat to themselves and their families.

As the fruit industry grows, the health problems of thousands of workers are being documented. Many of the estimated 1 million victims of pesticide poisoning each year are farm workers



Bill Lambrecht/Post-Dispatch  
Rene Gomez with her son Lenin (on lap) and daughter Karen. Both children have abnormalities that Gomez traces to her work mixing pesticides. Gomez and her children live alongside a pineapple plantation in El Porvenir, Honduras, where pesticides are heavily used.

### PROMISE & PERIL

SUNDAY, DECEMBER 12, 1993

## Pesticides

From page one

who do not have adequate protective equipment and who spray chemicals that are restricted or prohibited in the United States. Usually, they recover.

But, for some, ailments persist. During a three-month investigation of pesticides in Latin America, dozens of farm workers told of chronic health problems that they trace to farm chemicals.

In the case of one chemical, DBCP, the jury is in. Researchers know that thousands of Central American men became sterile after working in the 1970s with this U.S.-made pesticide used on banana plants.

The evidence of harm from other chemicals is more anecdotal. But recent medical studies have developed connections between pesticides and long-term health problems.

Pregnant women exposed to pesticides in the Sudan had twice as many stillbirths as unexposed women, according to a study by Ronald Gray, a doctor at Johns Hopkins University. Studies in Central America reported similar findings and high rates of early infant mortality among children born to farm workers.

April's edition of the *Journal of the National Cancer Institute* reported that women exposed to DDT-like insecticides had four times the risk of breast cancer. An accompanying editorial said that the study "may have extraordinary global implications for the prevention of breast cancer."

Dr. Rob McConnell of New York's Mount Sinai School of Medicine has found that poisoning victims in Nicaragua suffer decreased mental capacities and memory problems.

"People just aren't as smart as they used to be," McConnell says. "Their higher mental functions were altered."

Dr. Bruce Barrett, a physician from Johns Hopkins University who is working in Guatemala, asserts that the United States and other governments do not finance the testing that is needed.

"I'm convinced that there is a massive amount of negative health effects from pesticides in the developing world. But there's not a lot of good information out there, and there's not much political will to get it," Barrett says.

"All there are is lots of stories."

### The Stories

Go Standard Fruit Co.'s pineapple plantation at El Porvenir, Honduras. Reana Gomez would faint while mixing insecticides for the sprayers. The year was 1988, and she was pregnant. Her son, Lenin, was born with brain damage.

In 1981, working at the same job, she gave birth to a brain-damaged girl named Karen. Reana, now 32, had three other children when she wasn't working with chemicals; all are healthy.

Seven family members live 50 feet from a pineapple field in a one-room shack with no electricity or plumbing. Reana is unable to afford pills for Karen's epilepsy or tests needed for Lenin.

"I don't really blame anyone," she says. "Maybe I should have known there could be problems."

With its high-power stereo, video-cassette recorder and mahogany paneling, Daniel Vallecillo's comfortable home in Olanchito belies the poverty of the region.

A son, Daniel, died on New Year's Eve 1979 at age 26 after accidentally drinking water contaminated with an insecticide. Three generations of the Vallecillo family suffer health problems.

The senior Vallecillo worked with pesticides for 33 years and lived alongside Standard Fruit's banana plantation. Spray from insecticide machines used to drift over the family's home, he says. After a while, corn and beans didn't grow well and livestock died. He moved away.

Vallecillo, 71, is convinced that the years of exposure to the chemicals gave his family health problems. He has spent time in the hospital for stomach ailments. His daughter, Lucy, 38, has uncontrollable menstrual bleeding. A granddaughter, Indira, has epilepsy.

Vallecillo has no proof of what caused the problems.

"I used to love my land, and I wanted to keep it for my children and their children," he says. "But it is no good for anything now — except bananas."

At Olanchito, Juan and Gloria Diaz introduce their 12-year-old daughter, Million Carolina, a shy little girl with large eyes and a punk dress. She has developmental problems and is lagging behind children her age.

Juan Diaz, 51, ticks off names of the chemicals he sprayed in the 1970s and 1980s. All are banned or heavily restricted in the United States because of dangers to health.

"We would get our clothes soaked in pesticides, come home and sleep in them and then wear them the next day," he says.

Porfirio Garcia, 59, of El Porvenir, has worked with pesticides for 27 years and has been "intoxicated" by them more times than he can count, feeling a dizziness and sense of floating above the Earth. He spent a year in the hospital in the early 1980s because of lantur, spells and stom-



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration  
Rockville MD 20857

FOOD AND DRUG ADMINISTRATION  
PUBLIC HEALTH SERVICE  
DEPARTMENT OF HEALTH AND HUMAN SERVICES  
SUPPLEMENTAL  
STATEMENT FOR THE RECORD  
OF THE HEARING ON PESTICIDE EXPORTS  
BEFORE THE  
SUBCOMMITTEE ON ECONOMIC POLICY, TRADE AND THE ENVIRONMENT  
COMMITTEE ON FOREIGN AFFAIRS  
U.S. HOUSE OF REPRESENTATIVES

JANUARY 26, 1993

FOR RELEASE ONLY UPON DELIVERY



Mr. Chairman:

The Food and Drug Administration (FDA) appreciates the opportunity to provide additional information about its monitoring program for pesticide residues in imported foods. We hope that this discussion will give you further insight into the challenges the agency faces as the regulator and enforcer of the standards for pesticide residues in the food supply.

#### INTRODUCTION

There are approximately 200 basic food types with hundreds of varieties and thousands of processed forms. More than 50 U.S. States, Territories, and Possessions produce foods, and about 125 countries export foods to the U.S. each year. There are over 1.5 million formal shipments of foods offered for import into the U.S. annually that are subject to FDA oversight. There are approximately 300 pesticide active ingredients with U.S. tolerances, and 200-300 additional pesticide active ingredients with possible foreign uses. There are thousands of pesticide metabolites and degradation products. There are tens of thousands of possible pesticide-commodity-location combinations to contend with each year.

In the past, many criticisms have been leveled at FDA for its pesticide monitoring program, including charges:

- that FDA samples only a small percentage of the imported foods that enter the U.S.;

- that the number of samples taken are not sufficient to give statistically significant results;
- that FDA does not test for all possible pesticides that could be present on food commodities; and
- that FDA does not use enough single residue methods in its testing program.

These criticisms seem to reflect a lack of understanding about the vast universe of food shipments and commodity-chemical combinations that are available for sampling and testing.

Obviously, FDA does not have the resources to test every food shipment for every possible pesticide that may have been applied. Not only would the cost be prohibitive, but the time required to run such tests would result in large losses of food due to spoilage. Our task, therefore, is to choose from the universe of possible combinations those which are the most important for monitoring and which may enable us to judge the pesticide residue situation for the food supply as a whole. We also have to determine the most efficient and cost-effective ways to conduct our sampling and analyses.

It is in this context that FDA has worked diligently to develop a rational and effective monitoring scheme. FDA strives to apply what we know about pesticides, pesticide usage, and the capabilities and limits of our methodology, in order to obtain the most comprehensive coverage possible.

FDA'S MONITORING PROGRAM

Our program includes four types of monitoring, each with a different purpose:

- surveillance and compliance sampling, in which we collect and analyze samples of both domestic and imported foods for tolerance enforcement;
- the Total Diet Study, designed to measure pesticide residues (as well as other contaminants) in foods when table-ready, in order to determine the daily intake of pesticides through dietary sources;
- statistical monitoring, to help us estimate pesticide residue violation rates for specific commodities; and
- special enforcement surveys to monitor specific foods for residues of pesticides that are used in large volume, identified as known or suspected carcinogens, or most likely to result in residues because they are applied directly to a growing crop. This last group would include insecticides, such as formetenate, or fungicides, such as EBDC and benomyl.

In designing our sampling plans, we consider factors such as the dietary significance of the food, the volume of the food in commerce, domestic and foreign pesticide usage patterns, and the toxicity and chemical characteristics of each pesticide (such as persistence in the soil). We use a variety of both multi-residue and single-residue methods in each type of monitoring. We take

steps to ensure that our chemical analyses are accurate and of high quality, and we analyze the data carefully. We work with other Federal and state agencies to make our programs as complementary as possible, thereby ensuring the broadest possible coverage of the food supply.

While we believe we have designed a rational and effective monitoring program, we will continue to improve it wherever possible. We hope also that the reforms under consideration by the Administration for the export of pesticides will help to alleviate the concerns that some have raised in this area.

FDA's pesticide monitoring program has three objectives: to uncover significant pesticide residue problems in both domestic and imported foods, to take enforcement action against food shipments found to contain illegal pesticide residues, and to deter future violations. FDA accomplishes these goals through its enforcement activities and by working with state and foreign governments to familiarize officials with U.S. laws and regulations pertaining to pesticide usage in food production.

Because of questions about pesticide usage in foreign countries, FDA samples imported foods at a slightly greater rate than domestic foods, relative to their prominence in the U.S. diet, and emphasizes imported fresh produce. FDA routinely analyzes samples using multi-residue methods. These methods can detect



and measure residues of approximately half of the active ingredients of pesticides having food uses, and many additional metabolites. This figure includes pesticides known to be used in other countries, but which have no U.S. tolerances, and pesticides for which the U.S. tolerances have been revoked.

To assist the agency in determining which countries and commodities to sample, FDA obtains information about pesticide usage from several commercial sources: Landell Mills Market Research, Battelle-Europe, and the Royal Society of Chemistry. These sources provide the agency with information about selected countries' use of pesticides on specific commodities. FDA uses these data to design the agency's national pesticide residue sampling plan, direct analytical methods development research, and target analysis for pesticide residues, focussing especially on those which have no U.S. tolerances. For FY94, the cost of obtaining these pesticide usage data is approximately \$350,000.

FDA also has actively pursued acquisition of foreign pesticide usage data from governments of countries that are major food exporters to the United States, in accordance with the Pesticide Monitoring Improvements Act (P.L. 100-418, or PMIA). Following enactment of the PMIA, FDA contacted 37 countries to obtain information on their pesticide usage and programs. We have met with all of these countries' representatives and periodically provide them with information on FDA activities pertaining to

pesticides. In return, most also have provided us with usage or other relevant information.

Data acquired from commercial sources generally are not sufficient to allow FDA to target specific shipments to find violations, and data acquired from the foreign governments are specifically not to be used for this purpose. FDA has found such information to be useful generally, however, for identifying the pesticides that might be used on particular commodities grown abroad.

The contacts that were developed in conjunction with our implementation of the PMIA have helped FDA and other countries share information regarding their respective pesticide laws and requirements. FDA has participated in workshops and other types of international conferences to familiarize foreign pest control and food safety officials with U.S. laws, regulations, and enforcement practices and to encourage the safe and responsible use of pesticides. Representatives of over 50 foreign countries in North, South, and Central America, the Caribbean, the Pacific Rim, and Europe, have been provided with more in depth information about U.S. pesticide laws and enforcement procedures. We believe these bilateral and multilateral discussions and activities to encourage countries to control pesticide usage strictly and adopt integrated pest management and non-chemical, alternative pest control methods will encourage growers to adhere

to proper usage practices. Ultimately this will help reduce illegal residues of pesticides on imported foods.

FDA also is an active participant in other fora, such as the Codex Alimentarius Commission and its Codex Committee on Pesticide Residues. This intergovernmental body composed of over 100 national governments is responsible for implementing a food standards program, jointly sponsored by the Food and Agriculture Organization of the United Nations and the World Health Organization. The goal of the CCPR is to achieve international harmonization of national tolerances for pesticide residues in food in order to protect the health of consumers and to facilitate international food trade. Codex maximum residue limits (MRLs) reflect the level of a pesticide that would remain in a food if the pesticide is applied according to what is considered good agricultural practice. To date, the U.S. has not accepted any Codex MRLs that are significantly different from tolerances established by EPA. FDA will continue to support active participation in Codex and CCPR, especially given that Codex will acquire greater importance if (and when) the Uruguay Round of the General Agreement on Tariffs and Trade enters into force.

#### SUMMARY OF MONITORING RESULTS

In 1992, FDA analyzed a total of 16,428 food samples for pesticide residues under its regulatory monitoring programs. Of

these, 8651 samples, or 53%, were samples of imported foods from 92 countries. Overall, no violative residues were found in nearly 96% of the import surveillance samples. Indeed, 66% had no detectable residues whatsoever.

Of the approximately four percent of import samples that contained violative residues, the overwhelming majority had residues of pesticides that have approved uses and tolerances in the United States, but not for the particular commodity on which the pesticide residue was detected. [For example, there may be a U.S. tolerance for residues of a particular pesticide on white potatoes, but none for sweet potatoes, and FDA finds residues of the pesticide on sweet potatoes. Under the FDC Act, the sweet potatoes are adulterated.] Furthermore, the residue levels in these situations are frequently well below the U.S. tolerances set for the allowed commodity uses. For this reason, although these residues are illegal, we believe that the amounts found are unlikely to pose a hazard to consumers. Approximately 1% of import samples contained residues of pesticides that exceeded U.S. tolerances, a violation rate similar to that of domestic foods.

### The Total Diet Study

One of the best available indicators of the levels of pesticides to which Americans actually are exposed in their entire diets is FDA's Total Diet Study. Under this program, market baskets of foods are collected four times per year, once from each of four geographical regions of the U.S. Each market basket consists of over 200 foods purchased from local supermarkets in three cities in each geographical area. The foods, chosen on the basis of dietary data to represent the diet of the U.S. population, are prepared as would be done in the home, and then analyzed. The levels of the various substances found, along with food consumption data, are used to estimate the dietary intakes of these substances for fourteen selected age/gender groups, from infants to senior citizens. Initiated by FDA in 1961, the program has been expanded to include dietary intake estimates of essential minerals, pesticide residues, toxic metals, and industrial chemicals.

The Total Diet Study has shown consistently that the levels of pesticides in Americans' diets do not represent a significant health risk to Americans. These levels are well below the acceptable daily intake levels set by the World Health Organization. In addition, the Total Diet Study has shown, overall, a dramatic decrease in the amount of dietary exposure to environmentally persistent pesticides banned for health reasons by EPA, such as heptachlor, chlordane, and DDT.



The picture we receive from the Total Diet Study is affirmed by the data we obtain through our other monitoring programs. In general, FDA's data over the past quarter century have demonstrated a very low violation rate and very low levels of pesticide residues in foods. We have not found evidence of major problems for chemicals that are used in high volume or ones that would be most likely to appear as residues because they are applied directly to the commodity. We have no reason to believe that the findings would be any different for the pesticide chemicals for which we do not analyze as often. Thus, we can say with reasonable assurance to the American people that violative pesticide residues occur infrequently.

FDA prepares an annual summary of its pesticide residue monitoring program which is publicly available. We have attached the summary of FDA's findings for 1992 for the record.

#### THE CIRCLE OF POISON

As you are aware, Congress and environmental and consumer groups have raised concerns about the "Circle of Poison." The premise of the concern is that pesticides that are banned for health reasons or that are not approved for agricultural uses in the U.S., are manufactured here, and exported for use in food production in foreign countries. Subsequently, foods containing residues of these banned or otherwise unregistered pesticides could be exported to and consumed in the United States.

Recognizing these concerns, FDA has directed a significant portion of its monitoring effort to analyze imported produce for such chemicals. In general, however, data gathered by FDA in the course of the Agency's sampling and monitoring programs suggest that the "Circle of Poison" scenario occurs only rarely and does not pose a significant public health or food safety concern.

While FDA cannot examine imported foods for residues of all possible unregistered pesticides, results of FDA monitoring for a substantial number of pesticides in use worldwide show that imported foods generally do not contain either elevated levels or a high number of pesticide residues compared with domestic foods. This conclusion holds for most of the pesticides cancelled for health or environmental reasons, as well as the many other pesticides which are known to be used in other countries, but which do not have EPA registration or tolerances. We note also that some pesticides may be exported to other countries for non-food uses or may be used on crops that are not imported by the U.S.

Since 1990, FDA has examined more than 20,000 shipments of imported foods for a number of the pesticides implicated in the "Circle of Poison" debate, using a combination of multiresidue and single residue methods. In fiscal years 1993-94, the Agency has conducted "special emphasis" targeted monitoring of imported commodities for these chemicals. To date our monitoring has not

uncovered any commodity that contains significant residues of these pesticides. The overwhelming majority of imported food shipments which we have examined simply do not contain residues of most of these chemicals. In those few cases when residues are found, for example, prothiophos, the levels are very low, generally in the part per billion range.

Residues of chlórdane and heptachlor have been found in a very small percentage of imported foods. Residues of these chemicals also have been found at similar levels in domestically produced foods. Because the findings for imported and domestic foods are similar, it suggests that the residues were present from past use of these environmentally persistent chemicals and not from present use.

#### CONCLUSION

In summary, FDA's monitoring program strives to address concerns about the possibility that pesticides exported from the U.S. will appear as residues in foods imported to the U.S. FDA's data, however, show that it is an infrequent occurrence. When illegal residues are found, they are usually at extremely low levels, and, generally, are residues of the same pesticides that are registered for use in the U.S., but not on the commodity on which they are found.

## Projected Impact of "Circle of Poison" Bill

a.) Position: Export of pesticides canceled/never registered because of human health concerns prohibited.

Export Activity 1992: Two active ingredients; two products  
(see 1. U.S. PIC list, 2. print-out no. 1, and 3. chemical fact sheets)

b.) Position: Export of canceled/never registered pesticides based on environmental concerns prohibited unless importing government submits a request to U.S. seeking the release of the pesticide for shipment.

Export Activity 1992: Two active ingredients; four products  
(see print-out no. 1)

c.) Position: Export of unregistered pesticides prohibited unless there is a U.S. tolerance for the pesticide and the chemical has been evaluated and approved by governments with a protective regulatory scheme.

Export Activity 1992: 48 active ingredients; 112 products.  
Of these, 20 active ingredients and 73 products do not have either a tolerance or any associated registrations. (see print-out no. 2)

d.) Legislative Position: Export of a pesticide prohibited if importing government requests that a pesticide's exports to their country be terminated.

Export Activity 1992: 82 actives; 189 products (with U.S. tolerances)  
(see print-out no. 3)

(Note: This provision is difficult to project. The figure above represents unregistered pesticides that would all be exportable - provided multilingual labeling and purchaser notifications requirements were met - unless a government requested a ban on their export. The 82 active ingredients are candidates for a country request.)

Total Unregistered Export Activity 1992: <sup>156</sup>~~158~~ active ingredients; 346 products  
(see print-out no. 4)

Reached by 82 [actives with tolerances] + 48 [actives without tolerance] + 26 [unknown actives] = 156. Product totals are 189 + 112 + 45 = 346

## Exported Pesticides and the "Circle" Position

## Part I. Hard PIC (Health Concern)

1. aldrin
2. benzene hexachloride [BHC] (vol. cancellation)
3. 2,3,4,5-Bis(2-butylene)tetrahydro-2-furaldehyde [Repellent-11]
4. bromoxynil butyrate (vol. cancellation)
5. cadmium compounds (vol. cancellation)
6. calcium arsenate (vol. cancellation)
7. captafol (vol. cancellation)
8. carbon tetrachloride
9. chloranil (vol. cancellation)
10. chlordimeform (vol. cancellation)
11. chlorinated camphene [Toxaphene] (vol. cancellation)
12. chlorobenzilate (vol. cancellation)
13. chloromethoxypropylmercuric acetate [CPMA]
14. copper arsenate (vol. cancellation)
15. cyhexatin (vol. cancellation)
16. DBCP
17. decachlorooctahydro-1,3,4-metheno-2H-cyclobuta(cd) pentalen-2-one [chlordecone]
18. DDT
19. dieldrin
20. dinoseb and salts
21. Di(phenylmercury)dodeceny succinate [PMDS] (vol. cancellation)
22. endrin (vol. cancellation)
23. EPN (vol. cancellation)
24. ethyl hexyleneglycol [6-12] (vol. cancellation)
25. hexachlorobenzene [HCB] (vol. cancellation)
26. lead arsenate (vol. cancellation)
27. leptophos (Never received initial registration)
28. mirex (vol. cancellation)
29. nitrofen (TOK) (vol. cancellation)
30. OMPA (octamethylpyrophosphoramide)
31. phenylmercuric oleate [PMO] (vol. cancellation)
32. potassium 2,4,5-trichlorophenate [2,4,5-TCP]
33. pyriminil [Vacor] (vol. cancellation)
34. safrole (vol. cancellation)
35. silvex
36. sodium arsenite
37. TDE (vol. cancellation)
38. Terpene polychlorinates [Strobane] (vol. cancellation)
39. thallium sulfate
40. 2,4,5-Trichlorophenoxyacetic acid [2,4,5-T]
41. vinyl chloride



## Part I. (cont.)

- 42. arsenic trioxide
- 43. chlordane
- 44. daminozide (vol. cancellation)
- 45. EDB
- 46. heptachlor
- 47. mercurous chloride
- 48. mercuric chloride
- 49. phenylmercury acetate [PMA]
- 50. sodium arsenate

## Part II. Soft PIC (Environmental Concern)

- 51. monocrotophos (vol. cancellation)
- 52. carbofuran (vol. cancellation)
- 53. tributyltin compounds

## U.S. PIC Pesticides Exported -- 1992

Product Name	EDB 100
Active Ingredient	ETHYLENE DIBROMIDE
U.S. Tolerances (Y/N)	NO
Remaining Uses in the U.S. (Y/N)	NO

Product Name	FURADAN 95 MUP
Active Ingredient	CARBOFURAN
U.S. Tolerances (Y/N)	YES
Remaining Uses in the U.S. (Y/N)	YES

Product Name	EDB
Active Ingredient	ETHYLENE DIBROMIDE
U.S. Tolerances (Y/N)	NO
Remaining Uses in the U.S. (Y/N)	NO

Product Name	EDB
Active Ingredient	ETHYLENE DIBROMIDE
U.S. Tolerances (Y/N)	NO
Remaining Uses in the U.S. (Y/N)	NO

Product Name	SOILBROM 30
Active Ingredient	ETHYLENE DIBROMIDE
U.S. Tolerances (Y/N)	NO
Remaining Uses in the U.S. (Y/N)	NO

Product Name	TINTOX 1045
Active Ingredient	TRIBUTYL TIN
U.S. Tolerances (Y/N)	NO
Remaining Uses in the U.S. (Y/N)	YES

Product Name	TECHNICAL CHLORDANE VAL
Active Ingredient	CHLORDANE
U.S. Tolerances (Y/N)	NO
Remaining Uses in the U.S. (Y/N)	NO

Proposed for "Severely Restricted" list

# CHLORDANE

1. COUNTRY: United States

2. IDENTITY OF CHEMICAL: COMMON NAME: chlordane

TRADE NAME(s): 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindan; Velsicol 1068; Velsicol 168; M-410; Belt; Chlor-Kil; Chlortox; Corodane; Gold Crest C-100; Kilex; Gold Crest C-50; Kypchlor; Niran; Octachlor; Synklor; Termi-Ded; Topiclor 20; Chlordan; Prentox; Penticklor; Ortho Klor

CHEMICAL NAME (IUPAC): 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-4,7-methanoindene

3. CODE NUMBERS: CAS NUMBER: 57-74-9

4. USE CATEGORY(ies): Agricultural, Commercial, Industrial, Consumer

SPECIFY MAJOR USE AREAS WITHIN EACH CATEGORY: To control insect pests on a variety of deciduous fruits and nuts; vegetables, field fiber and forage crops; bush and vine fruits; citrus fruits, grain crops, pineapples, tobacco, tropical fruits, around agricultural premises, domestic dwellings (indoor), household or domestic dwellings (outdoor), wood protection treatment to existing buildings or parts of buildings; wood protection treatment to seasoned forest products.

5. CONTROL ACTION: In November 1974, EPA issued a notice of intent to cancel most uses of pesticide products containing chlordane and heptachlor. Uses not affected were products used for termite control and the dipping of roots or tops of non-food plants. On July 29, 1975, the EPA Administrator issued a notice of intent to suspend the registrations of chlordane that were subject to the cancellation hearings. The cancellation proceeding continued until November 1977 when the parties entered into settlement negotiations. In March 1978, the EPA issued a final order resulting in the eventual cancellation of all uses except for termite control. On October 1, 1987, EPA issued an order accepting the voluntary cancellation of chlordane termiticide treatment products. A notice signed on April 5, 1988 announced the cancellation and or suspension of all remaining chlordane termiticide products and established limitations on the sale and use of existing stocks of such products.

DOCUMENT REFERENCE: EPA PR Notice 74-11, Notice and Intent to Cancel Registration of Certain Chlordane and Heptachlor Products (December 2, 1974); 41 Federal Register 7552 (February 19, 1976); 43 Federal Register 12372 (March 24, 1978); 53 Federal Register 11801 (April 8, 1988).

6. USES STILL ALLOWED: There are no currently viable uses of chlordane in the United States. However, a small number of registrations for termiticide use still are on record with EPA. These registrations have been placed under administrative control whereby use is not allowed if or until an indoor air monitoring study is generated by the registrant. The deadline for this indoor air data will expire after 1994.

7. REASONS SUPPORTING THE CONTROL ACTION, RELEVANT TO PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT. Heptachlor and chlordane have caused an increase in liver tumors in animal studies. Evidence of toxicity to the embryo of rats and mice has been demonstrated and the compounds are considered to be probable human carcinogens by EPA. Chlordane and heptachlor are persistent in the environment and accumulate in the fatty tissue of animals, bioaccumulating in the food chain. Residues found in fish, birds and mammals may adversely affect the reproductive systems of these organisms.

8. ALTERNATIVES: (Agricultural crops): carbaryl, diazinon, bendiocarb, chlorpyrifos, trichlorfon, acephate, isazofos, fonofos, synthetic pyrethroids  
(Other sites): propoxur, diazinon, malathion, bendiocarb, chlorpyrifos, dichlorvos, acephate, propetamphos, synthetic pyrethroids

9. MINISTRY/DEPARTMENT AND RESPONSIBLE AUTHORITY  
ISSUING/ENFORCING THE CONTROL ACTION:

U.S. Environmental Protection Agency  
401 M Street S.W.  
Washington, D.C. 20460

10. CONTACT:

Douglas D. Camp  
Director, Office of Pesticide Programs  
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Proposed for "Severely Restricted" list

### TRIBUTYLTIN Compounds

1. COUNTRY: United States

2. IDENTITY OF CHEMICAL:

COMMON NAME(s): Tributyltin, TBTF, TBTO, TBTM,

TRADE NAME(s): Biomet, Bio M&T, Euretín, Tributyl Tin Fluoride; trade names of paints are numerous.

3. CODE NUMBERS for active ingredients no longer registered for anti-fouling paint use:

Chemical Name	CAS Number
bis (tributyltin) adipate	7437-35-6
bis (tributyltin) dodecenyl succinate	12379-54-3
bis (tributyltin) sulfide	4804-30-4
tributyltin acetate	56-36-0
tributyltin acrylate	13331-52-7
tributyltin resinate	none assigned

4. USE CATEGORY(ies): Commercial, Consumer

SPECIFIC MAJOR USE: To control growth of fouling organisms on vessel hulls, aluminum underwater boat parts, and crab pots. Also used as a wood preservative and in industrial and nonindustrial processing water.

5. CONTROL ACTION: On September 27, 1988, EPA announced regulations prohibiting the use of certain antifouling paints containing organotin, as well as the use of organotin compounds, purchased by consumers, to make such paints. In compliance with the June 1988 Organotin Antifouling Paint Control Act (OAPCA), registrants are required to limit the release of organotin compounds and stop using these paints on all non-aluminum vessels less than 82 feet (25 meters) in length. TBT paints must formulated for other uses must not be used on boats.

DOCUMENT REFERENCE: Environmental Protection Agency News, Office of Public Affairs, Washington D.C. (Sept. 27, 1988); 53 Federal Register 539022 (October 4, 1988).

6. USES STILL ALLOWED: Retained use of TBT compounds is limited to boats of a certain type and size. Additionally, applicators must undergo specific training. Aerosol paints packaged in volumes of 16 oz. or less may only be used on underwater aluminum parts of boats and are exempt from these sale and use



restrictions. Users must comply with the label instructions to prevent environmental contamination with removed paint and paint waste.

7. REASONS SUPPORTING THE CONTROL ACTION, RELEVANT TO PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT. EPA has determined that the TBT compounds are highly toxic to a variety of aquatic organisms. Oyster shell deformities have been observed in the U.S., England, and France, and laboratory tests have established that TBT is toxic to fish, crustaceans, and algae at very low concentrations. The contamination of estuarine waters which are habitats for important shellfish species and nurseries for fish is also of concern.

8. ALTERNATIVES: cuprous oxide, copper metallic, other copper salts,

9. MINISTRY/DEPARTMENT AND RESPONSIBLE AUTHORITY  
ISSUING/ENFORCING THE CONTROL ACTION:

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401 M Street, S.W.  
Washington, D.C. 20460

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Proposed for "Severely Restricted" list

# CARBOFURAN

1. COUNTRY: United States

2. IDENTITY OF CHEMICAL:

COMMON NAME: Carbofuran

TRADE NAME(s): Furadan, NIA 10242, Bay 78537, Curaterr, OMS 864, Bay 70143, D 1221, ENT 27164, FMC 10242, Pillarfulan, Yaltox

CHEMICAL NAME (IUPAC): 2,3-dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate

3. CODE NUMBERS: CAS NUMBER: 1563-66-2

4. USE CATEGORY(ies): Agriculture

SPECIFIC USES: To control insects and nematodes on field crops (field corn, peanuts, rice, soybeans, grain sorghum, and sugarcane) and certain vegetable crops, ornamental and forest trees. Approximately 7 to 10 million pounds of active ingredient (lb ai) are applied to these sites per year. From 6 to 9 million lb ai of the annual usage is accounted for by the granular formulation. The remainder is formulated as a flowable product.

5. CONTROL ACTION: On September 30, 1985, EPA initiated a review of the granular formulations of carbofuran because of concern for risk to avian species. This investigation led to EPA's proposal of January 25, 1989, to cancel all uses of granular carbofuran. On May 14, 1991, a settlement agreement was reached to phase-out most uses of granular carbofuran over four years beginning on September 1, 1991. The agreement eliminates certain uses of granular carbofuran while phasing out certain - limited - uses over a four year time frame. The agreement also establishes immediate restrictions on use of granular carbofuran in certain particularly sensitive areas in the U.S.

These restrictions include a ban on all granular carbofuran use (except the five remaining uses) in the states of Maine, New Hampshire, Vermont, Connecticut, Massachusetts, Rhode Island, Maryland, Delaware, Virginia, and Florida. In addition, granular carbofuran will be banned in the coastal counties of North Carolina, South Carolina, Washington and Oregon. No granular carbofuran will be allowed to be used on corn or sorghum in California.

Virtually all uses of granular carbofuran will be canceled nationwide by August 31, 1994.

DOCUMENT REFERENCE: EPA Environmental Fact Sheet, Granular Carbofuran, Settlement Agreement in Principle; 56 Federal Register 64621 (December 11, 1991).

6. USES STILL ALLOWED: Beginning on September 1, 1994, granular carbofuran will be labeled for domestic use on only 5 crops; bananas in Hawaii, cucurbits (pumpkins, cucumbers, watermelons, cantaloupes, and squash), dry-harvested cranberries, pine progeny tests and spinach grown for seed. The amount of granular carbofuran allowed to be produced for domestic use after August 31, 1994 will be limited to no more than 2,500 pounds per year. Carbofuran use for spinach grown for seed and pine tree progeny tests are exempt from the prohibition in Washington and Oregon.

7. REASONS SUPPORTING THE CONTROL ACTION, RELEVANT TO PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT. Based on laboratory and field data, EPA has concluded that granular carbofuran is acutely toxic to birds. A single granule may kill a small bird. Birds are expected to be present at the time of carbofuran application. Over 80 reported bird-kill incidents attributed to granular carbofuran use have occurred in several crops throughout the country. One of these kills involved over 2,000 birds of various types. Dietary exposure occurs from direct ingestion of granules and exposure from ingestion of contaminated soil invertebrates such as earthworms. Predatory birds may be secondarily exposed to carbofuran by feeding on contaminated vertebrates such as small birds.

8. ALTERNATIVES: Insecticides (foliar): *Bacillus thuringiensis*, carbaryl, esfenvalerate, permethrin, chlorpyrifos, methomyl, Insecticides (granular): terbufos, fonofos, chlorpyrifos, phorate, diazinon, tefluthrin, ethoprop  
Nematicides: 1,3-dichloropropene, aldicarb, fenamiphos, oxamyl, carbofuran (flowable), ethoprop, terbufos

9. MINISTRY/DEPARTMENT AND RESPONSIBLE AUTHORITY  
ISSUING/ENFORCING THE CONTROL ACTION:

U.S. Environmental Protection Agency  
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Proposed for "Severely Restricted" list

**ETHYLENE DIBROMIDE**

1. COUNTRY: United States

2. IDENTITY OF CHEMICAL:

COMMON NAME: Ethylene dibromide

TRADE NAME(s): Bromofume, E-D-Bee, EDB, EDB-85 Michigan Chemical), KopFume, Nephis

CHEMICAL NAME (IUPAC): 1,2-Dibromoethane

3. CODE NUMBERS: CAS NUMBER: 106-93-4

4. USE CATEGORY(ies): Agricultural (Other non-pesticidal uses exist. Primarily as an additive in gasoline.)

SPECIFY MAJOR USE AREAS WITHIN EACH CATEGORY: The major pesticidal use of EDB was for pre-plant soil fumigation. To a lesser extent, EBB was also used on stored grains, citrus, and vegetables.

5. CONTROL ACTION: Based primarily on concerns of carcinogenic risk from exposure to EDB, in 1977 EPA initiated an intensive evaluation of the effects of exposure to the compound. These concerns led EPA to emergency suspend the pre-plant soil fumigation use of this compound in September 1983. This action did not affect the grain fumigant use. However, following review of residues remaining on treated grains, in February 1984 EPA also emergency suspended registrations for use on stored grain and grain milling machinery. EPA assumed responsibility of stocks for disposal and by June 1990, had supervised and completed the disposal (incineration) of approximately 250,000 gallons and 250,000 pounds of EDB products.

DOCUMENT REFERENCE: 50 Federal Register 12072 (Mar. 27, 1985); Suspended, Cancelled, and Restricted Pesticides (SCR Pesticides List); United States Environmental Protection Agency, Office of Pesticides and Toxic Substances, February 1990.

6. USES STILL ALLOWED: The only remaining pesticidal use of EDB is for vault fumigation treatments of textiles and furs to control silverfish and moths.

7. REASONS SUPPORTING THE CONTROL ACTION, RELEVANT TO PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT. EPA found that EDB to pose a significant risk of carcinogenic, mutagenic, and adverse reproductive effects in the human population.

8. ALTERNATIVES: 1,3-dichloropropene, metam-sodium, methyl bromide, aldicarb, fenamiphos, oxamyl, ethoprop, flowable carbofuran

9. MINISTRY/DEPARTMENT AND RESPONSIBLE AUTHORITY  
ISSUING/ENFORCING THE CONTROL ACTION:

U.S. Environmental Protection Agency  
401 M Street, S.W.  
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13. ADDITIONAL INFORMATION:



Unregistered Exported Pesticides -- 1992  
With No Tolerance/Exemption from Tolerance

Page No. 1  
05/04/94

Product Name TELONE II  
Active Ingredient 1,3-DICHLOROPROPENE  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) YES

Product Name TELONE C-17  
Active Ingredient 1,3-DICHLOROPROPENE  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) YES

Product Name TRICLOPYR ETHYL ESTER  
Active Ingredient 2-(3,5,6-TRICHLORO)  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) YES

Product Name RH 6201 HP  
Active Ingredient ACIFLUORFEN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) YES

Product Name ACIFLUORFEN  
Active Ingredient ACIFLUORFEN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) YES

Product Name DOMINEX TECHNICAL  
Active Ingredient ALPHACYPERMETHRIN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name ALPHAMETHRIN  
Active Ingredient ALPHACYPERMETHRIN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name BESTOX SEC  
Active Ingredient ALPHACYPERMETHRIN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name BESTOX 10  
Active Ingredient ALPHACYPERMETHRIN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Unregistered Exported Pesticides -- 1992  
With No Tolerance/Exemption from Tolerance

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Product Name	BESTOX 10 EC
Active Ingredient	ALPHACYPERMETHRIN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	BESTOX TECHNICAL
Active Ingredient	ALPHACYPERMETHRIN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	DOMINEX
Active Ingredient	ALPHACYPERMETHRIN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	DOMINEX TABLETS
Active Ingredient	ALPHACYPERMETHRIN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	DOMINEX
Active Ingredient	ALPHACYPERMETHRIN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	ANCYMIDOL
Active Ingredient	ANCYMIDOL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	A-REST
Active Ingredient	ANCYMIDOL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	BAYUSCIDE 70% WP
Active Ingredient	BAYLUSCIDE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	TRANS BETA-FARNESENE
Active Ingredient	BETA FARNESENE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

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Product Name	SUPER CAID BLOCKS
Active Ingredient	BROMADIOLONE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	AIRMILLED CARBENDAZIM
Active Ingredient	CARBENDAZIM
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	CARBENDAZIM TECHNICAL
Active Ingredient	CARBENDAZIM
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	DELSENE 50 DF
Active Ingredient	CARBENDAZIM
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	MARSHAL 25 WP
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	MARSHAL 35 ST
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	MARSHAL 25% ULV
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	MARSHAL 25EC
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	MARSHAL 4 EC
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

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Product Name	MARSHAL 25 TS
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO
Product Name	MARSHAL 250 ULV
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO
Product Name	MARSHAL 35 STD
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO
Product Name	MARSHAL
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO
Product Name	MARSHAL 480 EC
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO
Product Name	MARSHAL 5 G
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO
Product Name	MARSHAL 40 DB
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO
Product Name	CARBOSULFAN 25 WP
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO
Product Name	MARSHAL 20 EC
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

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Product Name MARSHAL 25 ST  
Active Ingredient CARBOSULFAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name MARSHAL (R) 5G  
Active Ingredient CARBOSULFAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name CARBOSULFAN 5% G  
Active Ingredient CARBOSULFAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name CARBOSULFAN 25 EC  
Active Ingredient CARBOSULFAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name MARSHAL (R) TECHNICAL  
Active Ingredient CARBOSULFAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name CARBOSULFAN  
Active Ingredient CARBOSULFAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name MARSHAL 25 EC  
Active Ingredient CARBOSULFAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name MARSHAL 5G  
Active Ingredient CARBOSULFAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name MARSHAL 20 EC  
Active Ingredient CARBOSULFAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO



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Product Name	MARSHAL/R/25ST
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	MARSHAL 40 DB
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	MARSHAL TECHNICAL 20 %
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	MARSHAL TECHNICAL
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	MARSHAL 25 CE
Active Ingredient	CARBOSULFAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	TECHNICAL CHLORDANE VAL
Active Ingredient	CHLORDANE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	PENTAC WP
Active Ingredient	DIENOCHELOR
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	DIFETHIALONE
Active Ingredient	DIFETHIALONE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	CLEAN CROP DIPHACIN MEAL
Active Ingredient	DIPHACINONE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

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Product Name	CLEAN CROP DIPHACIN BLOCK
Active Ingredient	DIPHACINONE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES
Product Name	CLEAN CROP DIPHACIN LIQUID
Active Ingredient	DIPHACINONE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES
Product Name	DIPHACIN 120
Active Ingredient	DIPHACINONE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES
Product Name	E-4-TRIDECEN-1-YL-ACETATE
Active Ingredient	E-4-TRIDECEN-1-YL-ACETATE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES
Product Name	E-8-DODECEN
Active Ingredient	E-8-DODECEN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES
Product Name	E-8-DODECEN-1-YL ACETATE
Active Ingredient	E-8-DODECEN-1-YL ACETATE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES
Product Name	SOILBROM 30
Active Ingredient	ETHYLENE DIBROMIDE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO
Product Name	EDB
Active Ingredient	ETHYLENE DIBROMIDE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO
Product Name	EDB
Active Ingredient	ETHYLENE DIBROMIDE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

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Product Name	EDB 100
Active Ingredient	ETHYLENE DIBROMIDE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	CINCH
Active Ingredient	EXO-1-METHYL-4-(1-METHYLETHYL)-2(2-METHYLPHENY
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	FLUROXYPRY METHYL ESTER
Active Ingredient	FLUROXYPRY
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	CUTLASS
Active Ingredient	FLURPRIMIDOL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	FLURPRIMIDOL
Active Ingredient	FLURPRIMIDOL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	NUSTAR 20 DF
Active Ingredient	FLUSILAZOLE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	PUNCH
Active Ingredient	FLUSILAZOLE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	CN-1291
Active Ingredient	FURAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	GREAT LAKES EF40/10
Active Ingredient	FURAN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

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Product Name EF 40/10  
Active Ingredient FURAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name EF 40/10P  
Active Ingredient FURAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name EF-40  
Active Ingredient FURAN  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name HALOXYFOP R  
Active Ingredient HALOXYFOP  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name GALLANT 125 SE HERBICIDE  
Active Ingredient HALOXYFOP  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name HALOXYFOP ME-F  
Active Ingredient HALOXYFOP  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name DE 535  
Active Ingredient HALOXYFOP  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name GALLANT  
Active Ingredient HALOXYFOP  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

Product Name HALOXYFOP  
Active Ingredient HALOXYFOP  
Tolerance (Y/N) NO  
AI in Registered Pesticide (Y/N) NO

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Product Name	GALANT BEF
Active Ingredient	HALOXYFOP
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	HALOXYFOP ME-F
Active Ingredient	HALOXYFOP
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	DE 535
Active Ingredient	HALOXYFOP-METHYL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	ISOPROPALIN EC
Active Ingredient	ISOPROPALIN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	PAARLAN E.C.
Active Ingredient	ISOPROPALIN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	GALLERY DRY FLOWABLE
Active Ingredient	ISOXABEN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	SNAPSHOT
Active Ingredient	ISOXABEN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	MACHETE HERBICIDE
Active Ingredient	MACHETE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	EXPERIMENTAL BIOCIDES XB1-
Active Ingredient	METHYLISOTHIAZOLINONE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES



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Product Name	KATHON LX PLUS
Active Ingredient	METHYLISOTHIAZOLINONE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	NUARIMOL
Active Ingredient	NUARIMOL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	NUARIMOL TECHNICAL
Active Ingredient	NUARIMOL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	TOKUTHION
Active Ingredient	PROTHIOFOS
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	TOKUTHION
Active Ingredient	PROTHIOFOS
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	DIA-RAT ROZOL
Active Ingredient	ROZOL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	ROZOL
Active Ingredient	ROZOL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	H6573 ISOMER SALT
Active Ingredient	SILANE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	SIMETRYN TECHNICAL
Active Ingredient	SIMETRYN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

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Product Name	ENZONE
Active Ingredient	SODIUM TETRATHIO
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	ENZONE, 612-EUP-1
Active Ingredient	SODIUM TETRATHIO
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	BANISH
Active Ingredient	SULFOSATE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	VIKANE GAS FUMIGANT
Active Ingredient	SULFURYL FLUORIDE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	VIKANE
Active Ingredient	SULFURYL FLUORIDE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	FOLICUR TECHNICAL
Active Ingredient	TEBUCONAZOLE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	TERBUTHYLAZINE
Active Ingredient	TERBUTHYLAZINE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	MICROMIX HERBICIDE
Active Ingredient	TERBUTHYLAZINE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	THIAZOPYR
Active Ingredient	THIAZOPYR
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

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Product Name	THIAZOPYR HERBICIDE
Active Ingredient	THIAZOPYR
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	NO

Product Name	TINTOX 1045
Active Ingredient	TRIBUTYL TIN
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	Z-9-TRICOSENE
Active Ingredient	TRICOSENE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	Z-9 TRICOSENE
Active Ingredient	TRICOSENE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	Z-8-DODECEN-1-OL
Active Ingredient	Z-8-DODECEN-1-OL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	OMACIDE P-DOP-20
Active Ingredient	ZINC 2-PYRIDINETHIOL
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	ZINC OMADINE POWDER
Active Ingredient	ZINC OMADINE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

Product Name	ZINC OMADINE POWDER
Active Ingredient	ZINC OMADINE
Tolerance (Y/N)	NO
AI in Registered Pesticide (Y/N)	YES

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For Which Tolerances/~~Exemptions~~ ~~Exist~~

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Product Name	PREMIUM 2,4-D LV 600
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TORDON 202
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DYCLEER 24
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	2,4-D AMINE 500
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DMA 6
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	ESTERONE 99
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	ESTERON 600 SP
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	ESTERON
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	2,4-D BUTYL ESTER
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	2,4-D ACID ISOOCYTL ESTER
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	2,4-D TRIISOPROPANOLAMINE
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	2,4-DMA
Active Ingredient	2,4-DICHLOROPHENOXYACETIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	P301 8,10-DODECADIEN-1-OL
Active Ingredient	8,10-DODECADIEN-1-OL
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	FRONTIER HERBICIDE
Active Ingredient	ACETAMINE, 2-CHLORO (2,4-BIMETHYL-3THIENYL)
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	ACETOCHLOR HERBICIDE
Active Ingredient	ACETOCHLOR
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	GESAPRIM 50W
Active Ingredient	ATRAZINE
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	ATRAZINE 80WP
Active Ingredient	ATRAZINE
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	GESAPRIM 90
Active Ingredient	ATRAZINE
Tolerance (Y/N)	YES
AI In Registered Product	YES



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Product Name	GESAPRIM 80WP
Active Ingredient	ATRAZINE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	GESAPRIM 50FW
Active Ingredient	ATRAZINE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	GESAPRIM
Active Ingredient	ATRAZINE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	ATRAZINA 50FW
Active Ingredient	ATRAZINE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TEKNAR HPD
Active Ingredient	BACILLUS THURINGIENSIS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	CENTARI
Active Ingredient	BACILLUS THURINGIENSIS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DELFIN ULV
Active Ingredient	BACILLUS THURINGIENSIS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TEKNAR TECHNICAL CONCENTRATE
Active Ingredient	BACILLUS THURINGIENSIS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TEKNAR LARVACIDE
Active Ingredient	BACILLUS THURINGIENSIS
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	TALSTAR 2.5 EC
Active Ingredient	BIFENTHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	LIQUIBROM 2038
Active Ingredient	BROMINE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	SUTAN TECHNICAL
Active Ingredient	BUTYLATE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	FURADAN 95 MUP
Active Ingredient	CARBOFURAN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	VITAFLOW
Active Ingredient	CARBOXIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	CEREVAX
Active Ingredient	CARBOXIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	CEREVAX EXTRA
Active Ingredient	CARBOXIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	LONDAX 60 DF
Active Ingredient	CHLORIMURON ETHYL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TELONE II
Active Ingredient	CHLOROPICRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	NATURALIS-L
Active Ingredient	BEAUVERIA BASSIANA
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	BETHRODINE TECHNICAL
Active Ingredient	BENFLURALIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	BALAN DF
Active Ingredient	BENFLURALIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	BENLATE OD
Active Ingredient	BENOMYL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	BENLATE
Active Ingredient	BENOMYL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	QUIX SANITIZING TOWELS
Active Ingredient	BENZOIC ACID Z[[[4-METHOXY-6-1-3-TRIAZIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	METSULFURON METHYL TECHNICAL
Active Ingredient	BENZOIC ACID Z[[[4-METHOXY-6-1-3-TRIAZIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TALSTAR 100EC
Active Ingredient	BIFENTHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TALSTAR TECHNICAL 10% EC
Active Ingredient	BIFENTHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	CHOROTHAL 500 F
Active Ingredient	CHLOROTHALONIL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	EQUITY TERMITICIDE
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	EMPIRE 20 MICRO
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DURSBAN W
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DURSBAN TURF
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DURSBAN 50 W
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DURSBAN 2E
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DURSBAN 2.5
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DURSBAN 020
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	DURSBAN LO
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DURSBAN MC
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	LORSBAN 4E
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	ZERTELL F
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	LORSBAN
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	LORSBAN 1 PE
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	LORSBAN 25W
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	SPIKE 80W
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	LORSBAN 50W
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES



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Product Name	LORSBAN EYLENE MIXTURE
Active Ingredient	CHLORPYRIFOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	CAPTAN 80% WP
Active Ingredient	CIS-N-TRICHLORO
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	SELECT TECHNICAL
Active Ingredient	CLETHODIM
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	SELECT 2EC
Active Ingredient	CLETHODIM
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	LONTREL
Active Ingredient	CLOPYRALID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	LONTREL T
Active Ingredient	CLOPYRALID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	CARIBE 44
Active Ingredient	CUPROUS OXIDE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	CYPERMETHRIN TECHNICAL 25
Active Ingredient	CYPERMETHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	CYPERMETHRIN 250 EC
Active Ingredient	CYPERMETHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	ARRIVO 25EC
Active Ingredient	CYPERMETHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	FURY 10 EC
Active Ingredient	CYPERMETHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	ARRIVO 200 EC
Active Ingredient	CYPERMETHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	CYPERMETHRIN TECHNICAL
Active Ingredient	CYPERMETHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DIAZINON TECHNICAL
Active Ingredient	DIAZINON
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DIAZINON STABILIZED
Active Ingredient	DIAZINON
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DIAZONON 600 G/L EC
Active Ingredient	DIAZINON
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DIMETHENAMID TECHNICAL HE
Active Ingredient	DIMETHENAMID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DROVAR TECHNICAL
Active Ingredient	DIURON
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	SOLICAM S
Active Ingredient	DIURON
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DPX-L5300
Active Ingredient	DPX L5300
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DPX-E9636
Active Ingredient	DPX-E9636
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	E,E,-8,10-DODECADIEN-1-OL
Active Ingredient	E,E,-8,10-DODECADIEN-1-OL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	P301 E,E-8-10-DODECADIEN
Active Ingredient	E,E-8-10-DODECADIEN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	E-9-DODECENYL ACETATE
Active Ingredient	E-9-DODECENYL ACETATE
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	RUGBY 10G
Active Ingredient	EBUFOS
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	APACHE 10G
Active Ingredient	EBUFOS
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	APACHE TECHNICAL
Active Ingredient	EBUFOS
Tolerance (Y/N)	YES
AI In Registered Product	NO

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Product Name	RUGBY TECHNICAL 25% EC
Active Ingredient	EBUFOS
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	RUGBY TECHNICAL 25%
Active Ingredient	EBUFOS
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	RUGBY 10 ME
Active Ingredient	EBUFOS
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	RUGBY TECHNICAL
Active Ingredient	EBUFOS
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	CADUSAFOS
Active Ingredient	EBUFOS
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	EDGE 5G
Active Ingredient	ETHALFLURALIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	ETHYL PARATHION
Active Ingredient	ETHYL PARATHION
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	RUBIGAN
Active Ingredient	FENARIMOL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	RUBIGAN
Active Ingredient	FENARIMOL
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	INDAR 2F
Active Ingredient	FENBUCONAZOLE
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	SONAR
Active Ingredient	FLURIDONE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	SONAR 5P
Active Ingredient	FLURIDONE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	SONAR SRP
Active Ingredient	FLURIDONE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	MAVRIK 80
Active Ingredient	FLUVALINATE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	FOLPET 75 WP
Active Ingredient	FOLPET
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	FORTRESS TECHNICAL
Active Ingredient	FORTRESS
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	PROGIBB 20%
Active Ingredient	GIBBERELLIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	PROGIBB TB
Active Ingredient	GIBBERELLIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES



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For Which Tolerances/Exemptions Exist

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Product Name	PROGIBB TABLETS
Active Ingredient	GIBBERELIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES
 Product Name	 MON-14420
Active Ingredient	GLYPHOSATE AMM. SALT
Tolerance (Y/N)	YES
AI In Registered Product	YES
 Product Name	 GRANDLURE II
Active Ingredient	GRANDLURE II
Tolerance (Y/N)	YES
AI In Registered Product	YES
 Product Name	 GRANDLURE III
Active Ingredient	GRANDLURE III
Tolerance (Y/N)	YES
AI In Registered Product	YES
 Product Name	 GRANDLURE IV
Active Ingredient	GRANDLURE IV
Tolerance (Y/N)	YES
AI In Registered Product	YES
 Product Name	 3-INDOLE BUTYRIC ACID
Active Ingredient	INDOLE-3-BUTYRIC ACID
Tolerance (Y/N)	YES
AI In Registered Product	YES
 Product Name	 DELSENE MX 200
Active Ingredient	MANCOZEB
Tolerance (Y/N)	YES
AI In Registered Product	YES
 Product Name	 CURZATE M-8
Active Ingredient	MANCOZEB
Tolerance (Y/N)	YES
AI In Registered Product	YES
 Product Name	 MCPA AMINE 720
Active Ingredient	MCPA AMINE 720
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	MCPA MIX BUTYL
Active Ingredient	MCPA MIX BUTYL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TAMARON 600 SL
Active Ingredient	METHAMIDOPHOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TAMARON VL 66 DEG
Active Ingredient	METHAMIDOPHOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TAMARON VL 60 DEG
Active Ingredient	METHAMIDOPHOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TECHNICAL METHAZOLE
Active Ingredient	METHAZOLE
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	HARMONY
Active Ingredient	METHYL 3-AMINOSULFONYL-2-THIOPHENRCARLOXYLATE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	A5546
Active Ingredient	METHYL 3-AMINOSULFONYL-2-THIOPHENRCARLOXYLATE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	SENCOR 500
Active Ingredient	METRIBUZIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	SENCOR VM
Active Ingredient	METRIBUZIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	SENCOR 80 VM
Active Ingredient	METRIBUZIN
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	EXPRESS SUPER DF
Active Ingredient	METRIBUZIN
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	LEXONE TECHNICAL
Active Ingredient	METRIBUZIN
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	LEXONE 88
Active Ingredient	METRIBUZIN
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	ALLY 20 DF
Active Ingredient	METSULFURON METHYL
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	DPX-T6376
Active Ingredient	METSULFURON METHYL
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	SYSTHANE 2E
Active Ingredient	MYCLOBUTANIL
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	EXPERIMENTAL BIOCIDES XB2-
Active Ingredient	OCTHILINONE
Tolerance (Y/N)	YES
AI In Registered Product	YES
Product Name	SURFLAN
Active Ingredient	ORYZALIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	VYDATE L BLUE
Active Ingredient	OXAMYL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	OXAMYL
Active Ingredient	OXAMYL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	VYDATE L RED
Active Ingredient	OXAMYL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	GOAL TECH 95
Active Ingredient	OXYFLUORFEN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	EXPERIMENTAL BIOCIDES XB-6
Active Ingredient	OXYFLUORFEN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	XB-6
Active Ingredient	OXYFLUORFEN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	PARAQUAT
Active Ingredient	PARAQUAT
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	ECTIBAN 25
Active Ingredient	PERMETHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	PERMETHRIN 20% EC
Active Ingredient	PERMETHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	POUNCE 5% ULV
Active Ingredient	PERMETHRIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	PICLORAM TRIISOPROPANOLAM
Active Ingredient	PICLORAM
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TORDON SUPER
Active Ingredient	PICLORAM
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	PICLORAM K SALT
Active Ingredient	PICLORAM
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TORDON
Active Ingredient	PICLORAM
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TORDON K
Active Ingredient	PICLORAM
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TORDON 2696
Active Ingredient	PICLORAM
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TORDON 22
Active Ingredient	PICLORAM
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	BARRICADE 65WG
Active Ingredient	PRODIAMINE
Tolerance (Y/N)	YES
AI In Registered Product	NO



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Product Name	PROPAZINE 98% TECHNICAL
Active Ingredient	PROPAZINE
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	PROPETAMPHOS 50 EW
Active Ingredient	PROPETAMPHOS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	QUINCLORAC TECHNICAL
Active Ingredient	QUINCLORAC
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	GESATOP 90WG
Active Ingredient	SIMAZINE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	BLAZER 224L
Active Ingredient	SODIUM ACIFLUORFEN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	STOP SCALD
Active Ingredient	STOP SCALD
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	STOPFALL HERBICIDE
Active Ingredient	STOP-SCALD
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	SPIKE 5G
Active Ingredient	TEBUTHIURON
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	HERBIC 80W
Active Ingredient	TEBUTHIURON
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name GRASLAN 20 P  
 Active Ingredient TEBUTHIURON  
 Tolerance (Y/N) YES  
 AI In Registered Product YES

Product Name GRASLAN  
 Active Ingredient TEBUTHIURON  
 Tolerance (Y/N) YES  
 AI In Registered Product YES

Product Name TEBUTHIURON 80W  
 Active Ingredient TEBUTHIURON  
 Tolerance (Y/N) YES  
 AI In Registered Product YES

Product Name SPIKE G  
 Active Ingredient TEBUTHIURON  
 Tolerance (Y/N) YES  
 AI In Registered Product YES

Product Name SPIKE 80 W  
 Active Ingredient TEBUTHIURON  
 Tolerance (Y/N) YES  
 AI In Registered Product YES

Product Name A3990B  
 Active Ingredient TERBUTRYN  
 Tolerance (Y/N) YES  
 AI In Registered Product NO

Product Name TERBUTRYN TECHNICAL  
 Active Ingredient TERBUTRYN  
 Tolerance (Y/N) YES  
 AI In Registered Product NO

Product Name A4105A  
 Active Ingredient TERBUTRYN  
 Tolerance (Y/N) YES  
 AI In Registered Product NO

Product Name IGRAN 80W  
 Active Ingredient TERBUTRYN  
 Tolerance (Y/N) YES  
 AI In Registered Product NO

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Product Name	HARMONY
Active Ingredient	THIAMETURON METHYL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DIBETA SAS
Active Ingredient	THURINGIENSIS
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	RELEASE
Active Ingredient	TRICLOPYR
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	GARLON 4
Active Ingredient	TRICLOPYR
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	GARLON 3A
Active Ingredient	TRICLOPYR
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	GARLON 3A HERBICIDE
Active Ingredient	TRICLOPYR BUTOXETHYL ESTER
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	TRIFLURALIN
Active Ingredient	TRIFLURALIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	ADVANCE
Active Ingredient	TRIFLURALIN
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	P802 (S)-VERBENONE
Active Ingredient	VERBENONE
Tolerance (Y/N)	YES
AI In Registered Product	YES

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Product Name	P801 (S) - CIS-VERBENOL
Active Ingredient	VERBENONE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	VERBENONE
Active Ingredient	VERBENONE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	BF-285
Active Ingredient	XRM-5019
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	FLUMETSULAM 98%
Active Ingredient	XRM-5019
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	DE 498 XRM
Active Ingredient	XRM-5019
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	P404 Z-11-HEXADECENAL
Active Ingredient	Z-11-HEXADECENAL
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	Z-9 DODECENYL ACETATE
Active Ingredient	Z-9 DODECENYL ACETATE
Tolerance (Y/N)	YES
AI In Registered Product	NO

Product Name	CLEAN CROP WAXED MOUSE BAIT
Active Ingredient	ZINC PHOSPHIDE
Tolerance (Y/N)	YES
AI In Registered Product	YES

Product Name	CLEAN CROP MOUSE BAIT
Active Ingredient	ZINC PHOSPHIDE
Tolerance (Y/N)	YES
AI In Registered Product	YES

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~~00/00/00~~

## Product Name

## Active Ingredient

Z-9-14 AC [P603]	(Z)-9-TETRADECENOL
Z-9-TETRADECEN-1-YL	(Z)-9-TETRADECENOL
Z,E-9,12-TETRADECADIEN-1	(Z)-9-TETRADECENOL
Z-7-TETRADECEN-1-YL ACETATE	(Z)-9-TETRADECENOL
E-11-TETRACENEN-1-YL	(Z)-9-TETRADECENOL
(Z)-9-TETRADECENOL	(Z)-9-TETRADECENOL
Z-8-12	(Z)-9-TETRADECENOL
TELONE II	1,3-DICHLOROPROPENE
TELONE C-17	1,3-DICHLOROPROPENE
PREMIUM 2,4-D LV 600	2,4-DICHLOROPHENOXYACETIC ACID
TORDON 202	2,4-DICHLOROPHENOXYACETIC ACID
DYCLEER 24	2,4-DICHLOROPHENOXYACETIC ACID
2,4-D AMINE 500	2,4-DICHLOROPHENOXYACETIC ACID
DMA 6	2,4-DICHLOROPHENOXYACETIC ACID
ESTERONE 99	2,4-DICHLOROPHENOXYACETIC ACID
ESTERON 600 SP	2,4-DICHLOROPHENOXYACETIC ACID
ESTERON	2,4-DICHLOROPHENOXYACETIC ACID
2,4-D BUTYL ESTER	2,4-DICHLOROPHENOXYACETIC ACID
2,4-D ACID ISOOCYTL ESTER	2,4-DICHLOROPHENOXYACETIC ACID
2,4-D TRIISOPROPANOLAMINE	2,4-DICHLOROPHENOXYACETIC ACID
2,4-DMA	2,4-DICHLOROPHENOXYACETIC ACID
TRICLOPYR ETHYL ESTER	2-(3,5,6-TRICHLORO)
SUPER REFINED DPA	3,3-DICHLORO
EXSC4	3-iodo-2-propynyl butyl CARBAMATE
LES 1328	4,5-DICHLORO
FRONTIER HERBICIDE	ACETAMINE, 2-CHLORO (2,4-BIMETHYL-3THIENYL)
ACETOCHLOR HERBICIDE	ACETOCHLOR
RH 6211 HP	ACIFLUORFEN
ACIFLUORFEN	ACIFLUORFEN
DOMINEX TECHNICAL	ALPHACYPERMETHRIN
ALPHAMETHRIN	ALPHACYPERMETHRIN
BESTOX SEC	ALPHACYPERMETHRIN
BESTOX 10	ALPHACYPERMETHRIN
BESTOX 10 EC	ALPHACYPERMETHRIN
BESTOX TECHNICAL	ALPHACYPERMETHRIN
DOMINEX TABLETS	ALPHACYPERMETHRIN
DOMINEX	ALPHACYPERMETHRIN
ANCYMIDOL	ANCYMIDOL
A-REST	ANCYMIDOL
GESAPRIM 50W	ATRAZINE
ATRAZINE 80WP	ATRAZINE
GESAPRIM 90	ATRAZINE
GESAPRIM 80WP	ATRAZINE
GESAPRIM 50FW	ATRAZINE
GESAPRIM	ATRAZINE
ATRAZINA 50FW	ATRAZINE
TEKNAR HPD	BACILLUS THURINGIENSIS
CENTARI	BACILLUS THURINGIENSIS
DELFIN ULV	BACILLUS THURINGIENSIS
TEKNAR TECHNICAL CONCENTRATE	BACILLUS THURINGIENSIS
TEKNAR LARVICIDE	BACILLUS THURINGIENSIS



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Product Name	Active Ingredient
BASE-256	BASE-256 MANUFACTURING CONCENTRATE
BAYUSCIDE 70% WP	BAYLUSCIDE
NATURALIS-L	BEAUVERIA BASSIANA
BETHRODINE TECHNICAL	BENFLURALIN
BALAN DF	BENFLURALIN
BENLATE OD	BENOMYL
BENLATE	BENOMYL
QUIX SANITIZING TOWELS	BENZOIC ACID
METSULFURON METHYL TECHNICAL	Z[[[4-METHOXY-6-1-3-TRIAZIN
	BENZOIC ACID
	Z[[[4-METHOXY-6-1-3-TRIAZIN
TRANS BETA-FARNESENE	BETA FARNESENE
TALSTAR 100EC	BIFENTHRIN
TALSTAR TECHNICAL 10% EC	BIFENTHRIN
TALSTAR 2.5 EC	BIFENTHRIN
SUPER CAID BLOCKS	BROMADIOLONE
BROMETHALINE	BROMETHALINE
LIQUIBROM 2038	BROMINE
SUTAN TECHNICAL	BUTYLATE
AIRMILLED CARBENDAZIM	CARBENDAZIM
CARBENDAZIM TECHNICAL	CARBENDAZIM
DELSENE 50 DF	CARBENDAZIM
FURADAN 95 MUP	CARBOFURAN
MARSHAL 25 WP	CARBOSULFAN
MARSHAL 35 ST	CARBOSULFAN
MARSHAL 25% ULV	CARBOSULFAN
MARSHAL 25EC	CARBOSULFAN
MARSHAL 4 EC	CARBOSULFAN
MARSHAL 25 TS	CARBOSULFAN
MARSHAL 250 ULV	CARBOSULFAN
MARSHAL 35 STD	CARBOSULFAN
MARSHAL	CARBOSULFAN
MARSHAL 480 EC	CARBOSULFAN
MARSHAL 5 G	CARBOSULFAN
MARSHAL 40 DB	CARBOSULFAN
CARBOSULFAN 25 WP	CARBOSULFAN
MARSHAL 20 EC	CARBOSULFAN
MARSHAL 25 ST	CARBOSULFAN
MARSHAL (R) 5G	CARBOSULFAN
CARBOSULFAN 5% G	CARBOSULFAN
CARBOSULFAN 25 EC	CARBOSULFAN
MARSHAL (R) TECHNICAL	CARBOSULFAN
CARBOSULFAN	CARBOSULFAN
MARSHAL 25 EC	CARBOSULFAN
MARSHAL 5G	CARBOSULFAN
MARSHAL 20 EC	CARBOSULFAN
MARSHAL/R/25ST	CARBOSULFAN
MARSHAL 40 DB	CARBOSULFAN
MARSHAL TECHNICAL 20 %	CARBOSULFAN
MARSHAL TECHNICAL	CARBOSULFAN
MARSHAL 25 CE	CARBOSULFAN
VITAFLOW	CARBOXIN

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## Product Name

## Active Ingredient

DEREVAX	CARBOXIN
DEREVAX EXTRA	CARBOXIN
TECHNICAL CHLORDANE VAL	CHLORDANE
LONDAX 60 DF	CHLORIMURON ETHYL
TELONE II	CHLOROPICRIN
THOROTHAL 500 F	CHLOROTHALONIL
EQUITY TERMITICIDE	CHLORPYRIFOS
EMPIRE 20 MICRO	CHLORPYRIFOS
DURSBAN W	CHLORPYRIFOS
DURSBAN TURF	CHLORPYRIFOS
DURSBAN 50 W	CHLORPYRIFOS
DURSBAN 2E	CHLORPYRIFOS
DURSBAN 2.5	CHLORPYRIFOS
DURSBAN 020	CHLORPYRIFOS
DURSBAN LO	CHLORPYRIFOS
DURSBAN MC	CHLORPYRIFOS
DURSBAN 4E	CHLORPYRIFOS
ERTELL F	CHLORPYRIFOS
DURSBAN	CHLORPYRIFOS
DURSBAN 1 PE	CHLORPYRIFOS
DURSBAN 25W	CHLORPYRIFOS
SPIKE 80W	CHLORPYRIFOS
DURSBAN 50W	CHLORPYRIFOS
DURSBAN EYLENE MIXTURE	CHLORPYRIFOS
CAPTAN 80% WP	CIS-N-TRICHLORO
SELECT TECHNICAL	CLETHODIM
SELECT 2EC	CLETHODIM
MONTREL	CLOPYRALID
MONTREL T	CLOPYRALID
CARIBE 44	CUPROUS OXIDE
CYPERMETHRIN TECHNICAL 25	CYPERMETHRIN
CYPERMETHRIN 250 EC	CYPERMETHRIN
ARRIVO 25EC	CYPERMETHRIN
FURY 10 EC	CYPERMETHRIN
ARRIVO 200 EC	CYPERMETHRIN
CYPERMETHRIN TECHNICAL	CYPERMETHRIN
DIAZINON TECHNICAL	DIAZINON
DIAZINON STABILIZED	DIAZINON
DIAZONON 600 G/L EC	DIAZINON
FENTAC WP	DIENOCHLOR
DIFETHIALONE	DIFETHIALONE
DIMETHENAMID TECHNICAL HE	DIMETHENAMID
CLEAN CROP DIPHACIN MEAL	DIPHACINONE
CLEAN CROP DIPHACIN BLOCK	DIPHACINONE
CLEAN CROP DIPHACIN LIQUID	DIPHACINONE
DIPHACIN 120	DIPHACINONE
DROVAR TECHNICAL	DIURON
SOLICAM S	DIURON
P301 8,10-DODECADIEN-1-OL	8,10-DODECADIEN-1-OL
E,E,-8,10-DODECADIEN-1-OL	E,E,-8,10-DODECADIEN-1-OL
P301 E,E-8-10-DODECADIEN	E,E-8-10-DODECADIEN
DODECADIEN	DODECADIEN
2-7-DODECEN-1-YL ACETATE	DODECEN

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## Product Name

## Active Ingredient

Z-9 DODECENYL ACETATE	Z-9 DODECENYL ACETATE
E-8-DODECEN-1-YL ACETATE	E-8-DODECEN-1-YL ACETATE
E-5-DECEN-1-YL ACETATE	DODECEN
E-5-DECEN-1-OL	DODECEN
Z-5-DODECEN-1-YL ACETATE	DODECEN
Z-3-DECEN-1-YL ACETATE	DODECEN
ES-DECENYL ACETATE	DODECEN
E5 DECEN-1-OL	DODECEN
11-DODECEN-1-YL ACETATE	DODECEN
E-9-DODECENYL ACETATE	E-9-DODECENYL ACETATE
E-8-DODECEN	E-8-DODECEN
E-4-TRIDECEN-1-YL-ACETATE	E-4-TRIDECEN-1-YL-ACETATE
E-10 DODECENYL ACETATE	DODECEN
DPX-L5300	DPX L5300
DPX-E9636	DPX-E9636
RUGBY 10G	EBUFOS
APACHE 10G	EBUFOS
APACHE TECHNICAL	EBUFOS
RUGBY TECHNICAL 25% EC	EBUFOS
RUGBY TECHNICAL 25%	EBUFOS
RUGBY 10 ME	EBUFOS
RUGBY TECHNICAL	EBUFOS
CADUSAFOS	EBUFOS
EDGE 5G	ETHALFLURALIN
ETHYL PARATHION	ETHYL PARATHION
SOILBROM 30	ETHYLENE DIBROMIDE
EES	ETHYLENE DIBROMIDE
EES 100	ETHYLENE DIBROMIDE
CINCH	EXO-1-METHYL-4-(1-METHYLETHYL)
	-2((2-METHYLPHENYL
RUBIGAN	FENARIMOL
INDAR 2F	FENBUCONAZOLE
SONAR	FLURIDONE
SONAR 5P	FLURIDONE
SONAR SRP	FLURIDONE
FLUROXYPRY METHYL ESTER	FLUROXYPRY
CUTLASS	FLURPRIMIDOL
FLURPRIMIDOL	FLURPRIMIDOL
NUSTAR 20 DF	FLUSILAZOLE
PUNCH	FLUSILAZOLE
MAVRIK 80	FLUVALINATE
FOLFET 75 WP	FOLFET
FORTRESS TECHNICAL	FORTRESS
CN-1291	FURAN
GREAT LAKES EF40/10	FURAN
EF 40/10	FURAN
EF 40/10P	FURAN
EF-40	FURAN
PROGIBE 20%	GIBBERELLIC ACID
PROGIBE TB	GIBBERELLIC ACID
PROGIBE TABLETS	GIBBERELLIC ACID
MCN-14420	GLYPHOSATE AMM. SALT
GRANDLURE II	GRANDLURE II

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Product Name	Active Ingredient
GRANDLURE III	GRANDLURE III
GRANDLURE IV	GRANDLURE IV
HALOXYFOP R	HALOXYFOP
GALLANT 125 EE HERBICIDE	HALOXYFOP
DE 535	HALOXYFOP
GALLANT	HALOXYFOP
HALOXYFOP	HALOXYFOP
GALANT EEF	HALOXYFOP
DE 535	HALOXYFOP-METHYL
3-INDOLE BUTYRIC ACID	INDOLE-3-BUTYRIC ACID
IOBIO	IOBIO
IPSDIENOL	IPSDIENOL
IPSENOL	IPSENOL
ISOPROPALIN EC	ISOPROPALIN
PAARLAN E.C.	ISOPROPALIN
GALLERY DRY FLOWABLE	ISOXABEN
SNAPSHOT	ISOXABEN
JETAMEC INSECTICIDE	IVERMECTIN 7.5%
MACHETE HERBICIDE	MACHETE
DELSENE MX 200	MANCOZEB
TURZATE M-8	MANCOZEB
MCPA AMINE 720	MCPA AMINE 720
MCPA MIX BUTYL	MCPA MIX BUTYL
TAMARON 600 SL	METHAMIDOPHOS
TAMARON VL 66 DEG	METHAMIDOPHOS
TAMARON VL 60 DEG	METHAMIDOPHOS
TECHNICAL METHAZOLE	METHAZOLE
DE 535	METHYL 2
BIOCIDE HFP EXPERIMENTAL	METHYL 2
KATHON LX PLUS CONCENTRATE	METHYL 2
EXPERIMENTAL FUEL MICROBI	METHYL 2
HARMONY	METHYL
	3-AMINOSULFONYL-2-THIOPHENRCAR
ASE46	LOXYLATE
	METHYL
	3-AMINOSULFONYL-2-THIOPHENRCAR
	LOXYLATE
DOWCO 453	METHYL PROPANOATE
XRC 0453	METHYL PROPANOATE
MCPA ESTER 500	METHYL-2
MUSTER	METHYL-2
GRANSTAR	METHYL-2
EXPERIMENTAL BIOCIDES XB1-	METHYLISOTHIAZOLINONE
KATHON LX PLUS	METHYLISOTHIAZOLINONE
SENCOR 500	METRIBUZIN
SENCOR VM	METRIBUZIN
SENCOR 80 VM	METRIBUZIN
EXPRESS SUPER DF	METRIBUZIN
LEXONE TECHNICAL	METRIBUZIN
LEXONE 88	METRIBUZIN
ALLY 20 DF	METSULFURON METHYL
DPX-T6376	METSULFURON METHYL
CLEAN CROP SUPERIOR	MINERAL OIL



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## Product Name

## Active Ingredient

SYSTHANE 2E  
 NUARIMOL  
 NUARIMOL TECHNICAL  
 EXPERIMENTAL BIOCID E XB2-  
 SURFLAN  
 VYDATE L BLUE  
 OXAMYL  
 VYDATE L RED  
 30AL TECH 95  
 EXPERIMENTAL BIOCID E XB-6  
 XB-6  
 PARAQUAT  
 ECTIBAN 25  
 PERMETHRIN 20% EC  
 POUNCE 5% ULV  
 PICLORAM TRIISOPROPANOLAM  
 TORDON SUPER  
 PICLORAM K SALT  
 TORDON  
 TORDON K  
 TORDON 2696  
 TORDON 22  
 BARRICADE 65WG  
 PROPAZINE 98% TECHNICAL  
 PROPETAMPHOS 50 EW  
 QUINCLORAC TECHNICAL  
 PANTERA 12 EC  
 PANTERA R 3% EC  
 PANTERA 6 EC  
 CIA-RAT ROZOL  
 ROZOL  
 PROSULFOCARB  
  
 ESPROCARE  
 H6573 ISOMER SALT  
 SESATOP 90WG  
 SIMETRYN TECHNICAL  
 BLAZER 224L  
 ENZONE  
 ENZONE, 612-EUP-1  
 STOP SCALD  
 STOPFALL HERBICIDE  
 BANISH  
 MIKANE GAS FUMIGANT  
 MIKANE  
 ENHANCE  
  
 FOLICUR TECHNICAL  
 SPIKE 5G  
 HERBIC 80W  
 PRASLAN 20 P  
 PRASLAN  
 TEBUTHIURON 80W

MYCLOBUTANIL  
 NUARIMOL  
 NUARIMOL  
 OCTHILINONE  
 ORYZALIN  
 OXAMYL  
 OXAMYL  
 OXAMYL  
 OXYFLUORFEN  
 OXYFLUORFEN  
 OXYFLUORFEN  
 PARAQUAT  
 PERMETHRIN  
 PERMETHRIN  
 PERMETHRIN  
 PICLORAM  
 PICLORAM  
 PICLORAM  
 PICLORAM  
 PICLORAM  
 PRODIAMINE  
 PROPAGINE  
 PROPETAMPHOS  
 QUINCLORAC  
 QUIZALOFOP-P-TERFURYL  
 QUIZALOFOP-P-TERFURYL  
 QUIZALOFOP-P-TERFURYL  
 ROZOL  
 ROZOL  
 S- (PHENYLMETHYL  
 DIPROPYLCARBAMOTHIOATE)  
 S-BENZYL -1,2-DIMETHYLPROPYL  
 SILANE  
 SIMAZINE  
 SIMETRYN  
 SODIUM ACIFLUORFEN  
 SODIUM TETRATHIO  
 SODIUM TETRATHIO  
 STOP SCALD  
 STOP-SCALD  
 SULFOSATE  
 SULFURYL FLUORIDE  
 SULFURYL FLUORIDE  
 TALLOW FATTY ACID AMINE  
 ETHOXYLATE  
 TEBUCONAZOLE  
 TEBUTHIURON  
 TEBUTHIURON  
 TEBUTHIURON  
 TEBUTHIURON  
 TEBUTHIURON



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Product Name	Active Ingredient
PIKE G	TEBUTHIURON
PIKE 80 W	TEBUTHIURON
TERBUMETON TECHNICAL	TERBUMETON
TERBUTHYLAZINE	TERBUTHYLAZINE
ICROMIX HERBICIDE	TERBUTHYLAZINE
3990B	TERBUTRYN
TERBUTRYN TECHNICAL	TERBUTRYN
4105A	TERBUTRYN
GRAN 80W	TERBUTRYN
IARMONY	THIAMETURON METHYL
THIAZOPYR	THIAZOPYR
THIAZOPYR HERBICIDE	THIAZOPYR
BETA 5AS	THURINGIENSIS
INTOX 1045	TRIBUTYL TIN
RELEASE	TRICLOPYR
ARLON 4	TRICLOPYR
ARLON 3A	TRICLOPYR
ARLON 3A HERBICIDE	TRICLOPYR BUTOXETHYL ESTER
TRIFLURALIN	TRIFLURALIN
ADVANCE	TRIFLURALIN
802 (S) - VERBENONE	VERBENONE
801 (S) - CIS-VERBENOL	VERBENONE
VERBENONE	VERBENONE
BF-285	XRM-5019
FLUMETSULAM 98%	XRM-5019
DE 498 XRM	XRM-5019
404 Z-11-HEXADECENAL	Z-11-HEXADECENAL
E/Z-11 TETRADECENAL	Z-11-TETRADECEN
404 Z-11-HEXADECEN-1-AL	Z-11-TETRADECEN
Z-11-HEXADECEN-1-YL	Z-11-TETRADECEN
Z-11-14 AC [P604]	Z-11-TETRADECEN
Z,E-9,12-TETRADECADIEN-1	Z-11-TETRADECEN
Z-11-TETRADECEN-1-YL	Z-11-TETRADECEN
Z-6-HENEICOSEN-11-ONE	Z-6-HENEICOSEN-11-ONE
Z-8-DODECEN	Z-8-DODECEN 1-YL-ACETATE
Z-8-DODECEN-1-OL	Z-8-DODECEN-1-OL
Z-11-TETRADECEN-1-YL	Z-9-TETRADECNOL
MACIDE P-DOP-20	ZINC 2-PYRIDINETHIOL
CLEAN CROP WAXED MOUSE BAIT	ZINC PHOSPHIDE
CLEAN CROP MOUSE BAIT	ZINC PHOSPHIDE



ISBN 0-16-044656-2



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